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Introductory Financial Accounting

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by A.J. Cataldo II, PhD, CPA, CMA, CGMA

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[1] Acknowledgement: Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University. This is a first edition. Email Professor Cataldo at acataldo@wcupa.edu if you would like to contribute time to this effort, and help correct typos and make improvements to later editions of this text.

Chapter 1[1]

Accounting for Business

Learning Objectives

- Explain the purpose and importance of financial information and accounting and the role they play in capital formation.
- Identify stakeholders or users and uses of accounting information.
- Define accounting information in the context of internal and external users for managerial and financial accounting, respectively.
- Identify organizations involved in regulation and oversight of accounting information.
- Explain the importance of ethics in the development and presentation of financial accounting information.
- Provide a brief description of the Securities and Exchange Commission (SEC), the American Institute of Certified Public Accountants (AICPA), the Financial Accounting Standards Board (FASB), and the International Accounting Standards Board (IASB).
- Explain generally accepted accounting principles (GAAP) and apply some accounting principles.
- Define the four basic accounting principles, four basic accounting assumptions, and two accounting constraints.
- Define and describe the three basic forms of business entity.
- Define and describe the three basic business activities.
- Define and describe the four basic financial statements and how they interrelate.
- Analyze business transactions in the framework of the accounting equation.
- Illustrate your understanding of the basic accounting equation, listing and defining the three basic classifications presented in the balance sheet.
- Explain how basic transactions are accounted for, using transaction analysis.
- Use the results from basic transaction analysis to prepare the four basic financial statements.
- Explain risk and return relations and trade-offs and compute return on assets.

[1] Acknowledgement: An earlier version of this chapter was provided to all 2014 winter term ACC201 students and all accounting faculty on January 2-3, 2014, for review notes, comments, and recommendations for improvement. I appreciate the review notes, comments, and recommendations from the 2014 winter term ACC201 students (n=13) and Professor Bob Derstine. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

West Chester University Accounting Professors Barndt (left) and Cataldo (right) relax in early August 2011 in Benezette, Pennsylvania, while looking for elk.

Professor Barndt joined West Chester University in the fall of 2010. He served as vice president and international controller for NCO Group, Horsham, Pennsylvania. He was responsible for the financial reporting of NCO locations in Australia, the Philippines, Panama, and the United Kingdom. His extensive experience also includes, for example, serving as audit manager for Accume Partners, Moorestown, New Jersey; as vice president, chief operating officer, and chief financial officer for McGinley Mills, Inc., Easton, Pennsylvania; and as vice president of Chem Clear, Inc., Wayne, Pennsylvania.

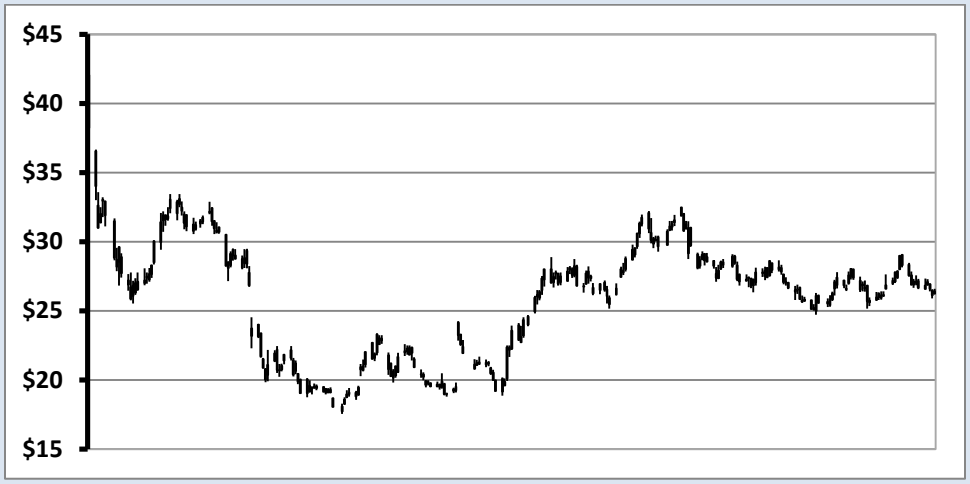
- B.S.B.A. LaSalle University
- M.B.A. LaSalle University
- Ed.D. Widener University
- C.P.A. State of Pennsylvania

Professor Cataldo joined West Chester University in the fall of 2007. He began his career in public accounting, was the chief financial officer for a small division (120 employees), worked for the California Auditor General, and was a forensic accountant, testifying in Arizona, California, Nevada, Texas and Minnesota for cases involving Ford, GM, Chrysler, Toyota, and other automobile manufacturers. He has taught at several universities, including the University of Arizona, Gonzaga, and Northeastern. His publications have appeared in *National Tax Journal*, *Tax Notes*, *Journal of Accountancy*, *Strategic Finance*, and many others. He has been quoted by the *Wall Street Journal* and his research has been used by the *Securities and Exchange Commission* in Court.

- B.S.B.A. Accounting/Finance University of Arizona
- M.Acc. Taxation University of Arizona
- Ph.D. Virginia Polytechnic Institute and State University
- C.P.A. State of Arizona
- C.M.A. Institute of Management Accountants
- C.G.M.A. American Institute of Certified Public Accountants

Accounting for Facebook, the Initial Public Offering and Capital Formation
Facebook[2] (NASDAQ: FB) held their initial public offering (IPO) on May 18, 2012.[3] More than 500 million shares traded on the day of the IPO, with an opening price of $42.05, a high of $45, a low of $38, and a closing price of $38.23 per share.

The Facebook IPO provides a contemporary example of how capital markets are used to raise capital to finance growth and operations. The price per share of Facebook stock did (eventually) rise above its IPO high of $45 per share.[4] Facebook's price per share, for the first year, is summarized in the below graph.



[2] The website for Facebook is located at https://www.facebook.com/.
[3] An IPO is the first sale of stock by a private company to the public, usually issued by smaller, younger companies seeking the capital to expand, but IPOs can also be done by large privately owned companies looking to become publicly traded. The issuer is assisted by an underwriting firm, which helps it determine what type of security to issue (common or preferred stock), the best offering price and the timing of the IPO. An IPO is also referred to as a *public offering*.
[4] A possible explanation for the short-term decline in the price per share for Facebook stock is the highly publicized "unlocking" of restrictions in the sale of an additional supply of shares, which occurred prior to the 2012 calendar year end.

Financial information facilitates, among other things, capital formation (e.g., Facebook and Twitter). Capitalism is dependent on economic resources to fund the expansion of these firms and other firms in growth industries. Financial information is used to assist investors and see to it that economic resources are deployed to their *highest and best use*.

Accounting Information

Accounting represents the financial component of a broader information and measurement system. Accounting systems identify, record, summarize and communicate relevant, reliable, and consistent financial and economic events-based transactions and information about a firm's business activities.

Identify → Record → Summarize → Communicate

While the accounting process includes the early stages of recordkeeping or bookkeeping, it extends beyond the mere recording of transactions and events, including analysis and interpretation. However, before you are able to effectively and efficiently analyze and interpret accounting and financial information, you must master the mechanical aspects of the recordkeeping or bookkeeping process. This introductory course in financial accounting will provide this foundation.

Accounting is, frequently, referred to as the *language of business*. Users of this language include two broad groups:

- **External** users - include members of the board of directors, shareholders or investors, financial institutions or potential creditors, customers, suppliers, regulators, attorneys, stock brokers, and the financial and general press. *Financial* accounting serves external users with financial statements.
- **Internal** users - include those directly involved in the day-to-day operations of the firm. *Managerial* accounting focuses on the needs and forms of accounting and financial information used to facilitate the internal decision-making process.

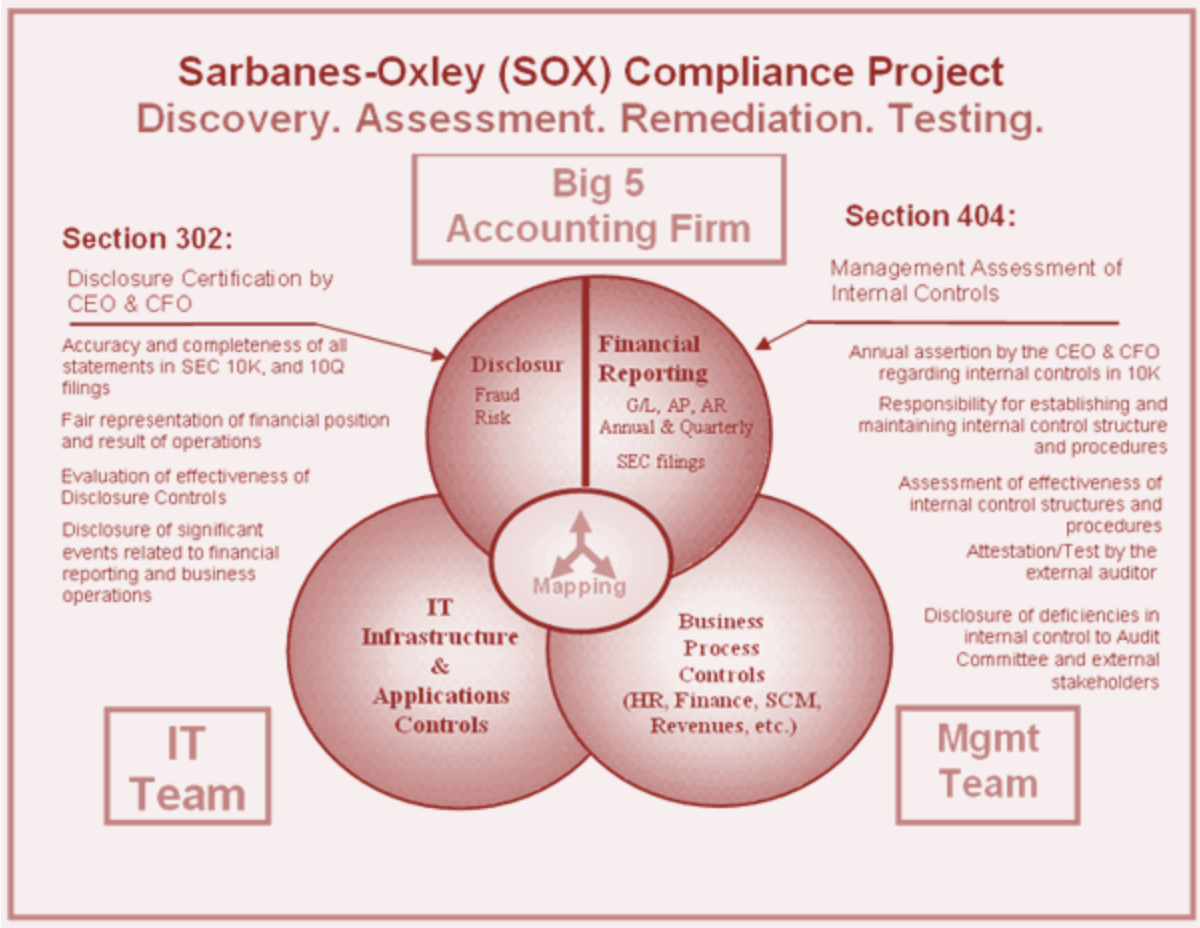
External users	**Internal** users
• *Creditors or lenders*	• *Board of directors*
• *Stock or shareholders*	• *Executives*
• *Governments*	• *Managers*
• *Consumer groups*	• *Controllers*
• *External auditors*	• *Internal auditors*
• *Suppliers*	• *Employees*
• *Customers*	

Securities and Exchange Commission[5]

The Securities and Exchange Commission (SEC) was established in response to the stock market crash of 1929 and the *Great Depression*. Formed through the Securities Exchange Acts of 1933 and 1934, the SEC has oversight authority over firms listed on major stock exchanges (e.g., the New York Stock Exchange (NYSE)) and required to file audited financial statements with them.

Sarbanes-Oxley

The Sarbanes-Oxley (SOX) Act was passed by Congress (2002) as a reaction to highly publicized stock or capital markets audit failures (e.g., Enron and WorldCom). SOX was



designed to legislatively require greater transparency, accountability, and the verification of internal controls and internal control effectiveness. Certified Public Accountants (CPAs) or auditors verify the effectiveness of internal controls.

[5] The website for the SEC is located at http://www.sec.gov/.

American Institute of Certified Public Accountants[6]

The American Institute of Certified Public Accountants (AICPA) is the national professional organization of CPAs and has been instrumental in the development of generally accepted accounting principles (GAAP). The AICPA appointed the Committee on Accounting Procedure (CAP) in 1939. This committee of practicing CPAs issued 51 Accounting Research Bulletins (ARBs) through 1959. The Accounting Principles Board (APB) issued 31 APB Opinions from 1959 to 1973.

Financial Accounting Standards Board[7]

The Financial Accounting Standards Board (FASB; 1973-) is the umbrella organization appointed and answering to the Financial Accounting Foundation (FAF) and the Financial Accounting Standards Advisory Council (FASAC). FASB members need not be CPAs. The FASB issues standards and interpretations, financial accounting concepts, technical bulletins, and Emerging Issues Task Force (EITF) statements. The FASB is the accounting profession's self-regulatory body, charged with the responsibility of establishing and maintaining generally accepted accounting principles.

The Importance of Ethics

While Enron (Andrew Fastow and Jeffrey Skilling) and WorldCom (Bernard Ebbers) remain some of the most highly publicized cases of fraud for publicly traded stocks, the most recent, highly publicized failure of ethical behavior is, perhaps, the case of Bernard Madoff of Madoff Investment Securities.

Initially, the Madoff fraud was estimated to have resulted in losses of $65 billion in a Ponzi-scheme-based fraud. However, later estimates suggest that investors lost approximately $20 billion in principal. Recoveries remain in process and have reduced this amount.

Generally Accepted Accounting Principles

Generally accepted accounting principles (GAAP) provide the concepts and rules governing financial accounting practice. These principles have changed or been modified, over time and in response to the demands of users of financial accounting information. The objective of GAAP is to provide financial information that is *relevant*, *reliable*, and *comparable*.

The SEC has the legal authority over GAAP, but has delegated this task to the FASB, a private-sector group that sets both broad and specific principles. The accounting profession, therefore, self-regulates, though the SEC can challenge any positions taken by this self-regulatory body.

[6] The website for the AICPA is located at http://www.aicpa.org/.
[7] The website for the FASB is located at http://www.fasb.org/facts/index.shtml.

International Accounting Standards Board[8]

The International Accounting Standards Board (IASB) represents a restructured International Accounting Standards Committee (IASC). The former will work toward the development of a single set of high-quality global accounting standards. The latter was established in 1973, to harmonize international accounting standards. The IASB is charged with the development of International Financial Reporting Standards (IFRS).

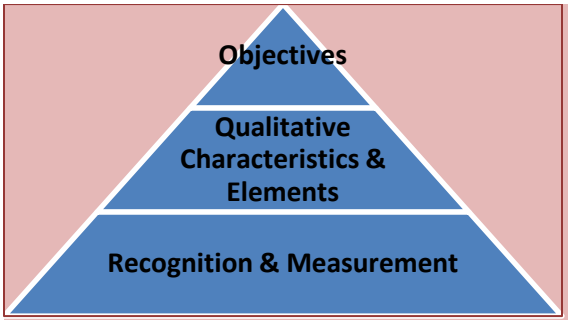
The objective of harmonization is to be able to use a single set of financial statements in all financial markets. The differences between U.S. GAAP and IFRS continue to fade, as the FASB and the IASB pursue *harmonization* and *convergence* to achieve a single set of standards for global use. Non-U.S. SEC registrants are no longer required to incur the additional costs to reconcile IRFS to U.S. GAAP. U.S. GAAP is still required for U.S. SEC registrants.

Large publicly traded U.S. companies might have to adopt IFRS as early as 2015. Smaller companies are likely to follow at some later date. Early adoption is permitted for large multinationals.

Conceptual Framework and Convergence

The FASB and IASB are attempting to integrate or converge and enhance the conceptual framework, which consists of:

- *Objectives* – to provide information useful to all stakeholders (e.g., investors and creditors).
- *Qualitative Characteristics* – to require information that is relevant, reliable, and comparable.
- *Elements* – to define financial statement items or components.
- *Recognition and Measurement* – to set criteria to be met by financial statement items or components, and how they should be measured.



[8] The website for the IASB is located at http://www.iasb.org/Home.htm.

A more fully developed variation of the above is developed and introduced in most intermediate-level financial accounting texts. A comparable supplement to the *Qualitative Characteristics* of accounting information is provided in **Appendix A** to this chapter.

Accounting Principles and Accounting Assumptions

There are two classifications of accounting principles and assumptions. General principles include basic assumptions, concepts and guidelines used when preparing financial statements, originating from long-used accounting practices. Specific principles include detailed rules used to report business transactions and events, frequently arising from rulings of authoritative groups.

Accounting Principles

There are four basic accounting principles:

Accounting Principles

1. Measurement, Cost or ***Historical Cost***
2. Revenue Recognition
3. Expense Recognition or ***Matching***
4. Full Disclosure

1. The *measurement principle* (or *historical cost principle*) is based on the presumption that accounting information is based on actual or historical cost. While these measures might, subsequently, be adjusted to market value, measures used originate from the cash or cash value of an item given up or received in the exchange transaction. Historical cost is *reliable*, *verifiable* and *objective*. For example, if a firm pays $500 for furniture, the purchase will be recorded at $500. The fair market value of the furniture is not relevant. The check was written for $500, and this measure is reliable, verifiable and objective.
2. The *revenue recognition principle* provides guidance with respect to the timing of recording revenue (sales) from selling products or services. Recognizing revenue too early might make a firm appear to be more profitable than it really is. Recognizing revenue too late might make a firm appear to be less profitable than it really is. There are three very important concepts to keep in mind with respect to the revenue recognition principle:
   - Revenue is recognized when earned. The earnings process is normally completed when services are performed or ownership is transferred from a seller to the buyer.
   - Proceeds from sales need not be in cash. Credit sales or sales on account represent alternatives to cash sales, and revenue from these sales are considered recognized and earned on the date of the sale.
   - Revenue is measured as cash received plus the cash value of other items received. So a sale that includes a down payment plus a future promise to pay or a balance due at some later date is recognized and earned on the date of the sale.

3. The *expense recognition principle* (or *matching principle*) requires that firms record expenses incurred to generate revenues recognized. These revenues and expenses are *"matched"* to the period in which they occurred.
4. The *full disclosure principle* requires that a firm report sufficient details, supporting the financial statements, to the extent that this additional information might have an impact on financial statement "user" decisions. Typically, these disclosures appear in the notes or footnotes to the financial statements.

Accounting Assumptions
There are four basic accounting assumptions:

Accounting Assumptions
1. Going-Concern
2. Monetary Unit
3. Time Period or ***Periodicity***
4. Business Entity

1. The *going-concern assumption* presumes that the business will continue to operate. An alternative assumption would be that the firm is not going to continue to operate and/or must be liquidated. Under the going-concern assumption, property continues to be reported at historical cost. If this assumption cannot be made or is not reasonable, property would have to be revalued, perhaps at liquidation value.
2. The *monetary unit assumption* provides for the expression of economic transactions and events in money or monetary units. This would include the dollar in the U.S., the peso in Mexico, and so on.
3. The *time period* (or *periodicity*) *assumption* provides for the production of financial statements and useful financial reports in months, quarters, semi-annual and annual periods.
4. The *business entity assumption* provides for separation between a business entity and its owners. Generally, there are three legal forms for an entity:

Forms of Business Entity
1. Sole Proprietorship
2. Partnership
3. Corporation

- A *sole proprietorship* or proprietorship is a business owned by one person. For tax and liability purposes, the sole proprietor and the business are viewed as a single entity, so no special legal requirements must be met to start a proprietorship. A disadvantage associated with this form of business is its unlimited liability. The sole proprietorship is a separate accounting entity.
- A *partnership* is a business owned by two or more persons, called partners. Partners are jointly and severally liable for partnership obligations, and, usually, involve the development and agreement to a legal document called a partnership

agreement, detailing how partnership profits and losses are to be shared by the partners. A partnership, like a sole proprietorship, is not an entity legally separate from the owners/partners, so the same disadvantage exist with respect to unlimited liability. Three different types of partnerships include:

Three Types of Partnership

1. General and Limited Partnership
2. Limited Liability Partnership
3. Limited Liability Company

a. General and Limited partnerships (LPs) distinguish between and have both general and limited partners. Limited partners are "limited" with respect to liability. They can only lose their investment, plus any assessments provided for in the partnership agreement. They are not involved in managing the partnership. General partners manage the partnership, so their liability is unlimited.
b. Limited liability partnerships (LLPs) restrict partner liabilities to their own actions and those acts conducted by persons under their control, protecting innocent partners from the negligence of other partners. All partners remain responsible for partnership debts.
c. Limited liability companies (LLCs) provide for the limited liability associated with the corporate form of organization, but the tax treatment associated with a partnership or sole proprietorship.

- A *corporation* is a business legally separate from its owners. Corporations act through their managers, legal agents considered to remain separate from owners. Owners of corporations are also known as shareholder or stockholders.

Stockholders have limited liability, and are not held liable for corporate actions or debts. This is the primary advantage associated with the corporate form of business entity. Disadvantages include double taxation. There are two types of corporations:

Two Types of Corporation

1. C Corporation (the focus of this and most financial accounting courses)
2. S Corporation

Corporate income is taxed at the corporate level, in the case of a C (or subchapter C) corporation. Dividends paid to stockholders are taxed, again, at the individual level. In contrast, an S (or subchapter S) corporation is not a taxpaying entity, where shareholders report their share of corporate income on their personal or individual tax return.

Corporate ownership is represented by shares or stock. If a corporation has only one class of stock, it is referred to as common stock.

Accounting Constraints

There are two basic accounting constraints:

Accounting Constraints
1. Materiality
2. Cost-Benefit

1. The *materiality constraint* takes the relative importance and size of a measure into consideration. Only information likely to influence a reasonable user's decision-making process need be disclosed. This is a matter of professional judgment and experience, where it is desirable to avoid generating "noise" or information likely to be insignificant or immaterial.
2. The *cost-beneficial constraint* considers the cost or producing information with the benefits likely to result from its generation and disclosure. The cost should not exceed the benefit.

Some of the basic attributes of proprietorships, partnerships and corporations are summarized below:

Attributes	Sole Proprietor or Proprietorship	General Partnership	Subchapter C Corporation
Separate Accounting Entity	Yes	Yes	Yes
Single Owner	Yes	No	Yes
Entity Taxed	No	No	Yes
Limited Liability	No	No	Yes
Separate Legal Entity	No	No	Yes
Unlimited Life	No	No	Yes
U.S. Federal Tax Forms	Form 1040 Schedule C or F	Form 1065	Form 1120

Basic Financial Statements[9]
The four basic financial statements, in order of preparation, include:

(1) **Income Statement** – reports revenues less expenses over a period of time.
(2) **Statement of Retained Earnings** – reports how retained earnings change over a period of time.
(3) **Balance Sheet** – reports the firm's financial position at a point in time.
(4) **Statement of Cash Flows** – report sources and uses of cash over a period of time.

Basic Business Activities
As you progress through this text and accounting and business coursework you will realize that there are three basic business activities, classified as

(1) **Operating** – involving the use of resources for short-term or current operations.
(2) **Investing** – involving the use of long-term or noncurrent assets to achieve both short-term and long-term (or current and noncurrent) operating goals and objectives.
(3) **Financing** – involving the use debt (and financial leverage) and equity to achieve both short-term and long-term (or current and noncurrent) goals and objectives.

The above framework will be most apparent in the framework and design of the statement of cash flows, the basic format for which is introduced later in this chapter.

The Basic Accounting Equation
Introductory and undergraduate accounting courses place considerable emphasis on the development of skills used to analyze increasingly complex business activities and transactions and their mechanical placement within the framework of the basic accounting equation, as follows:

Assets = Liabilities + Equity or ***A = L + E***

Assets represent economic resources that a firm owns or controls. Assets are expected to generate future returns or benefits to the firm and its owners. *Receivables*

[9] Many examples of these and other financial statements and supporting schedules can be found on the Internet. For example, you can go to the Ford Motor Company (NYSE: F) website located at http://www.ford.com/ and click the investors link located at http://www.ford.com/about-ford/investor-relations to identify and review their latest annual report. The annual report provides basic financial information, but is packaged, also, as a marketing tool for the firm's stock. Alternatively, you can go directly to the SEC website and view a more detailed Form 10-K (annual financial statement) or Form 10-Q (quarterly financial statements). These documents are far more technical in format, when compared to the annual report. Still another alternative presents itself. The *Yahoo!Finance* website is available at http://finance.yahoo.com/. For example, enter the ticker symbol for Ford (F) to view the Ford Motor Company financial statements. Understand that this is a "secondary" source and the annual reports on the firm's website or on the SEC website is a "primary" source and preferable.

(or *accounts receivable*) refer to an asset expected to result in a future *inflow* of resources.

Liabilities represent creditors' claims on economic resources that a firm owns or controls. The firm is obligated to provide assets, products or services to these creditors at some future point in time. *Payables* (or *accounts payable*) refer to a liability expected to result in a future *outflow* of resources.

Equity represents owner's claims on economic resources that a firm owns or controls. Also known as *owners' equity*, *net assets* or *residual equity*, equity is equal to assets minus liabilities.

Stockholders' equity or shareholders' equity has two components:

(1) **Contributed Capital** is capital that was contributed to the firm by the shareholders. These shareholder investments are referred to as common stock.
(2) **Retained Earnings** are earnings that have not been paid out to the firm's shareholders, in the form of dividends, and have been retained for corporate growth and operations.

Transactions Analysis
While these operational definitions will be more fully developed in later chapters, for now, think of assets as thing you "own," liabilities are things you "owe," and the equity measure as a "plug," where given the value of assets and liabilities, you can determine the amount of equity (e.g., if assets are $10 and liabilities are $4, equity is $6). Each and every transaction, separately, uses this very mechanical and basic accounting equation or framework. Therefore, when a large number of transactions are summarized for a month, this basic accounting equation is maintained.

Assume that assets include cash, trade accounts receivable (AR; monies owed to us from sales we made to customer we also extended credit to improve our sales), supplies (a class of inventory), and property, plant and equipment (PP&E; long-lived assets like land, buildings, vehicles, and furniture). Our only liabilities are trade accounts payable (AP; monies we owe to our suppliers, when they extended credit to us to improve their sales). And our equity (or owners' equity) is everything that is not an asset (something we "own") or a liability (something we "owe"). These equities include common stock (CS), and dividends that we pay from revenues less expenses. It is very important to understand that ***common stock purchases (capital contributions) and revenues increase equity and dividends paid (capital distributions or reductions) and expenses reduce equity***.

The transactions and format that follows is a fairly common approach to introducing basic business events recorded and using the accounting equation. Assume that this is a service business or a professional services firm, as we walk through some transactions recorded using the basic accounting equation:

(1) The Soltis Corporation is formed with an initial investment of $50,000. The check comes from the owner's personal checking account to start a corporate account. The corporation issues stock to the sole shareholder in exchange for the firm's common or capital stock. There is an increase is cash, an asset, and an increase in common stock, an equity, where an increase is A, L or E is indicated with a "+" sign and a decrease is indicated with a "-" sign. The transaction is recorded below, where A = L + E or $50,000 = $0 + $50,000.

					A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
(1)	+$50,000				=		+	+$50,000			

Notes: _____

(2) Soltis purchases supplies for a cash payment of $5,000. The transaction is recorded below, where the transaction decreases cash, an asset, and increases supplies, also an asset, by precisely the same $5,000. The new balance for A = L + E or ($45,000 + $5,000) = $0 + $50,000.

					A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
	+$50,000				=		+	+$50,000			
(2)	-$5,000		+$5,000		=		+				
	+$45,000		+$5,000		=		+	+$50,000			

Notes: _____

(3) Soltis purchased equipment at a cost of $35,000, again, paid for with cash. The transaction is recorded below, where the transaction decreases cash, an asset, and increases property, plant and equipment (PP&E), an asset, again, by precisely the same $35,000. The new balance for A = L + E is ($10,000 + $5,000 + $35,000) = $0 + $50,000.

					A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
	+$45,000		+$5,000		=		+	+$50,000			
(3)	-$35,000			+$35,000	=		+				
	+$10,000		+$5,000	+$35,000	=		+	+$50,000			

Notes: _____

(4) Soltis purchases additional supplies, but given its declining cash balance and favorable credit worthiness, makes this purchase with a down payment of $5,000 in cash and $10,000 on credit (trade accounts payable or AP) for a $15,000 purchase. The new balance for A = L + E is ($5,000 + $20,000 + $35,000) = $10,000 + $50,000.

					A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
	+$10,000		+$5,000	+$35,000	=		+	+$50,000			
(4)	-$5,000		+$15,000		=	+$10,000	+				
	+$5,000		+$20,000	+$35,000	=	+$10,000	+	+$50,000			

Notes: _____

(5) Soltis completes professional services for an agreed upon $10,000, where the client pays the agreed upon 50% or $5,000 immediately and agrees to pay the remaining 50% or $5,000 in 30 days (trade accounts receivable or AR). The new balance for A = L + E is ($10,000 + $5,000 + $20,000 + $35,000) = $10,000 + ($50,000 + $10,000).

				A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
	+$5,000		+$20,000	+$35,000	=	+$10,000	+	+$50,000			
(5)	+$5,000	+$5,000			=		+			+$10,000	
	+$10,000	+$5,000	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+$10,000	

Notes: _____

(6) Soltis pays $2,500 monthly rent expense and $1,500 monthly salary expense in cash. ***Dividends (capital reductions) and expenses reduce equity.*** The new balance for A = L + E is ($6,000 + $5,000 + $20,000 + $35,000) = $10,000 + ($50,000 + $10,000 - $4,000).

				A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
	+$10,000	+$5,000	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+$10,000	
(6)	-$4,000				=		+				-$4,000
	+$6,000	+$5,000	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+$10,000	-$4,000

Notes: _____

(7) Soltis completes professional services for an agreed upon $7,500, where the client promptly pays the entire amount in cash. In addition, the former client pays their remaining $5,000 balance (see item (5)) early. Therefore, the corporation is able to deposit $12,500 in cash, $7,500 from client B and the collection of the trade account receivable due from client A. The new balance for A = L + E is ($18,500 + $20,000 + $35,000) = $10,000 + ($50,000 + $17,500 - $4,000).

				A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
	+$6,000	+$5,000	+$20,000	+$35,000	=	+$10,000	+	+$50.000		+$10,000	-$4,000
(7)	+$12,500	-$5,000			=		+			+$7,500	
	+$18,500	$0	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+17,500	-$4,000

Notes: _____

(8) Soltis is having a very good first month and the firm's cash balance is very high, so management/Soltis decides to pay the $10,000 trade account payable (AP) and declare and pay a dividend of $5,000. Both reduce cash by a combined $15,000. The new balance for A = L + E is ($3,500 + $20,000 + $35,000) = $0 + ($50,000 - $5,000 + $17,500 - $4,000).

				A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
	+$18,500	$0	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+17,500	-$4,000
(8)	-$15,000				=	-$10,000	+		-$5,000		
	+$3,500	$0	+$20,000	+$35,000	=	$0	+	+$50,000	-$5,000	+$17,500	-$4,000

Notes: _____

All eight of the above transactions are summarized, complete with subtotals, in the table that follows:

				A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
(1)	+$50,000				=		+	+$50,000			
(2)	-$5,000		+$5,000		=		+				
	+$45,000		+$5,000		=		+	+$50,000			
(3)	-$35,000			+$35,000	=		+				
	+$10,000		+$5,000	+$35,000	=		+	+$50,000			
(4)	-$5,000		+$15,000		=	+$10,000	+				
	+$5,000		+$20,000	+$35,000	=	+$10,000	+	+$50,000			
(5)	+$5,000	+$5,000			=		+			+$10,000	
	+$10,000	+$5,000	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+$10,000	
(6)	-$4,000				=		+				-$4,000
	+$6,000	+$5,000	+$20,000	+$35,000	=	+$10,000	+	+$50.000		+$10,000	-$4,000
(7)	+$12,500	-$5,000			=		+			+$7,500	
	+$18,500	$0	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+17,500	-$4,000
(8)	-$15,000				=	-$10,000	+		-$5,000		
Total	+$3,500	$0	+$20,000	+$35,000	=	$0	+	+$50,000	-$5,000	+$17,500	-$4,000

Notes: _____

_____

_____

_____

_____

_____

_____

Alternatively, all eight of the cash receipt and cash disbursement-based transactions are summarized, but without subtotals, in the table that follows:

				A	=	L	+	E			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
(1)	+$50,000				=		+	+$50,000			
(2)	-$5,000		+$5,000		=		+				
(3)	-$35,000			+$35,000	=		+				
(4)	-$5,000		+$15,000		=	+$10,000	+				
(5)	+$5,000	+$5,000			=		+			+$10,000	
(6)	-$4,000				=		+				-$4,000
(7)	+$12,500	-$5,000			=		+			+$7,500	
(8)	-$15,000				=	-$10,000	+		-$5,000		
Total	+$3,500	$0	+$20,000	+$35,000	=	$0	+	+$50,000	-$5,000	+$17,500	-$4,000

The same fact patterns for the above transactions will also be used in Chapter 2, but the information for each transaction will be presented in some different or additional formats.

The following table converts the above format from horizontal to vertical for each account's ending balances:

	A	=	L	+	E
Cash	$3,500				
AR	$0				
Supplies	$20,000				
PP&E	$35,000				
AP			$0		
CS					$50,000
Dividends					-$5,000
Revenues					$17,500
Expenses					-$4,000
	$58,500	=	$0	+	$58,500

Basic Financial Statements

Recall that the four basic financial statements include the **Income Statement** – reports revenues less expenses over a period of time; **Statement of Retained Earnings** – reports how retained earnings change over a period of time; **Balance Sheet** – reports the firm's financial position at a point in time; and **Statement of Cash Flows** – report sources and uses of cash over a period of time, as follows:

	Period of Time	Point in Time
Income Statement	X	
Statement of Retained Earnings	X	
Balance Sheet		X
Statement of Cash Flows	X	

Income Statement – Not in *Good Form*

Below is the basic format for the *income statement*. It is not in *good form*. Good form would include a heading with the firm's name, statement title, and period covered. Note that revenues less expenses equal net income.[10]

Revenues	$17,500
Expenses	$4,000
Net Income	$13,500

[10] Net income is arrived at after income taxes, but income taxes were not included in these introductory and very basic transactions.

Income Statement – In *Good Form*

Below is the basic format for the *income statement*. It is in *good form*. Good form includes a heading with the firm's name, statement title, and period covered.

Soltis Corporation
Income Statement
For the Month Ended December 31, 2013

Revenues	$17,500
Expenses	$4,000
Net Income	$13,500

Revenues will include sales, interest income, rent income, and other income items. Expenses will include rent, salaries, utilities, property and other taxes, insurance, interest, and so on. Revenues and expenses can be disclosed in greater detail, but you should become familiar with this very basic format and oversimplified example in this first chapter.

Statement of Retained Earnings – Not in *Good Form*

Below is the basic format for the *statement of retained earnings*. It is not in *good form*. Good form would include a heading with the firm's name, statement title, and the period covered. Note how net income (or loss) from the *income statement* flows into the *statement of retained earnings*. Recall that

1. Retained earnings are increased by revenues and, therefore, net income
2. Retained earnings are decreased by expenses and, therefore, a net loss
3. Retained earnings are also decreased by any dividends paid, since these earnings are not retained.

	Retained Earnings, Beginning	$0
plus:	Net Income	$13,500 ⟸
		$13,500
less:	Dividends	$5,000
equals:	Retained Earnings, Ending	$8,500

Statement of Retained Earnings – In *Good Form*

Below is the basic format for the *statement of retained earnings*. It is in *good form*. Good form includes a heading with the firm's name, statement title, and the period covered.

Soltis Corporation
Statement of Retained Earnings
For the Month Ended December 31, 2013

	Retained Earnings, Beginning	$0
plus:	Net Income	$13,500
		$13,500
less:	Dividends	$5,000
equals:	Retained Earnings, Ending	$8,500

The statement of retained earnings summarizes earnings retained. Dividends, of course, are earnings that have not been retained. This component of earnings was paid to shareholders. The statement of retained earnings provides for a mechanical link between the firm's income statement and balance sheet.

Balance Sheet – Not in *Good Form*

Below is the basic format for the *balance sheet*. It is not in *good form*. Good form would include a heading with the firm's name, statement title, and the balance sheet date for a point in time.

Note that assets are listed in order of liquidity.[11] While only one liability (trade accounts payable) was used in the introductory illustration of transactions, other liabilities will be introduced in later chapters. Liabilities are also listed in order of liquidity, where the liabilities expected to be paid first are listed first, the liability expected to be paid second is listed second, and so on.

Cash	$3,500
Accounts Receivable	$0
Supplies	$20,000
Property, plant & equipment	$35,000
Total assets	$58,500

Accounts payable	$0
Common stock	$50,000
Retained earnings	$8,500 ⇐
Total equities	$58,500

Also note that ending retained earnings, from the *statement of retained earnings*, is represented in the *balance sheet*.

	Retained Earnings, Beginning	$0
plus:	Net Income	$13,500
		$13,500
less:	Dividends	$5,000
equals:	Retained Earnings, Ending	$8,500 ⇐

[11] Cash is the most liquid asset, so it is listed first. Trade accounts receivable are next in the sequence. Supplies inventory are listed after trade accounts receivable. Property, plant & equipment are required for the ongoing operation of the firm, so it is not a liquid asset in the ordinary course of "ongoing" operations (going concern assumption). Generally, ongoing operations (i.e., no liquidation or bankruptcy) are presumed when preparing (historical cost-based) financial statements.

Balance Sheet – In *Good Form*

Below is the basic format for the *balance sheet*. It is in *good form*. Good form includes a heading with the firm's name, statement title, and the point in time.

Soltis Corporation
Balance Sheet
December 31, 2013

Assets	
Cash	$3,500
Accounts Receivable	$0
Supplies	$20,000
Property, plant & equipment	$35,000
Total assets	$58,500
Liabilities and Owners' Equity	
Accounts payable	$0
Common stock	$50,000
Retained earnings	$8,500
Total equities	$58,500

The balance sheet provides a summary of balances for all assets, liabilities and owners' equity accounts at the end of the accounting period.

Statement of Cash Flows – Not in *Good Form*

Below is the basic format for the *statement of cash flows*. It is not in *good form*. Good form would include a heading with the firm's name, statement title, and the period covered. Note the separation of the statement of cash flows into the 3 basic business activities covered earlier in this chapter: (1) operating, (2) investing, and (3) financing activities.

Cash flows from operating activities:		
Cash received from clients	$17,500	
Cash paid for supplies	($20,000)	
Cash paid for rent	($2,500)	
Cash paid for salaries	($1,500)	($6,500)
Cash flows from investing activities:		
Purchase of property, plant & equipment	($35,000)	($35,000)
Cash flows from financing activities:		
Cash received for common stock	$50,000	
Dividends paid in cash	($5,000)	$45,000
Net increase in cash		$3,500
Cash balance, beginning		$0
Cash balance, ending		$3,500

Statement of Cash Flows – In *Good Form*

Below is the basic format for the *statement of cash flows*. It is in *good form*. Good form would include a heading with the firm's name, statement title, and the period covered. Note the separation of the statement of cash flows into the 3 basic business activities covered earlier in this chapter:

(1) Operating activities.
(2) Investing activities.
(3) Financing activities.

Soltis Corporation
Statement of Cash Flows
For the Month Ended December 31, 2013

Cash flows from operating activities:		
Cash received from clients	$17,500	
Cash paid for supplies	($20,000)	
Cash paid for rent	($2,500)	
Cash paid for salaries	($1,500)	($6,500)
Cash flows from investing activities:		
Purchase of property, plant & equipment	($35,000)	($35,000)
Cash flows from financing activities:		
Cash received for common stock	$50,000	
Dividends paid in cash	($5,000)	$45,000
Net increase in cash		$3,500
Cash balance, beginning		$0
Cash balance, ending		$3,500

The statement of cash flows may be the most useful of the four financial statements, but it also the most complex to produce, read and understand. Its production requires a beginning balance sheet, an income statement for the period, and an ending balance sheet. Therefore, it is produced from two balance sheets and an income statement, so it should make sense that the statement of cash flows would provide users with more information.

Soltis Corporation
Income Statement
For the Month Ended December 31, 2013

Revenues	$17,500
Expenses	$4,000
Net Income	$13,500

Soltis Corporation
Statement of Retained Earnings
For the Month Ended December 31, 2013

	Retained Earnings, Beginning	$0
plus:	Net Income	$13,500
		$13,500
less:	Dividends	$5,000
equals:	Retained Earnings, Ending	$8,500

Soltis Corporation
Balance Sheet
December 31, 2013

Assets

Cash	$3,500
Accounts Receivable	$0
Supplies	$20,000
Property, plant & equipment	$35,000
Total assets	$58,500

Liabilities and Owners' Equity

Accounts payable	$0
Common stock	$50,000
Retained earnings	$8,500
Total equities	$58,500

Soltis Corporation
Statement of Cash Flows
For the Month Ended December 31, 2013

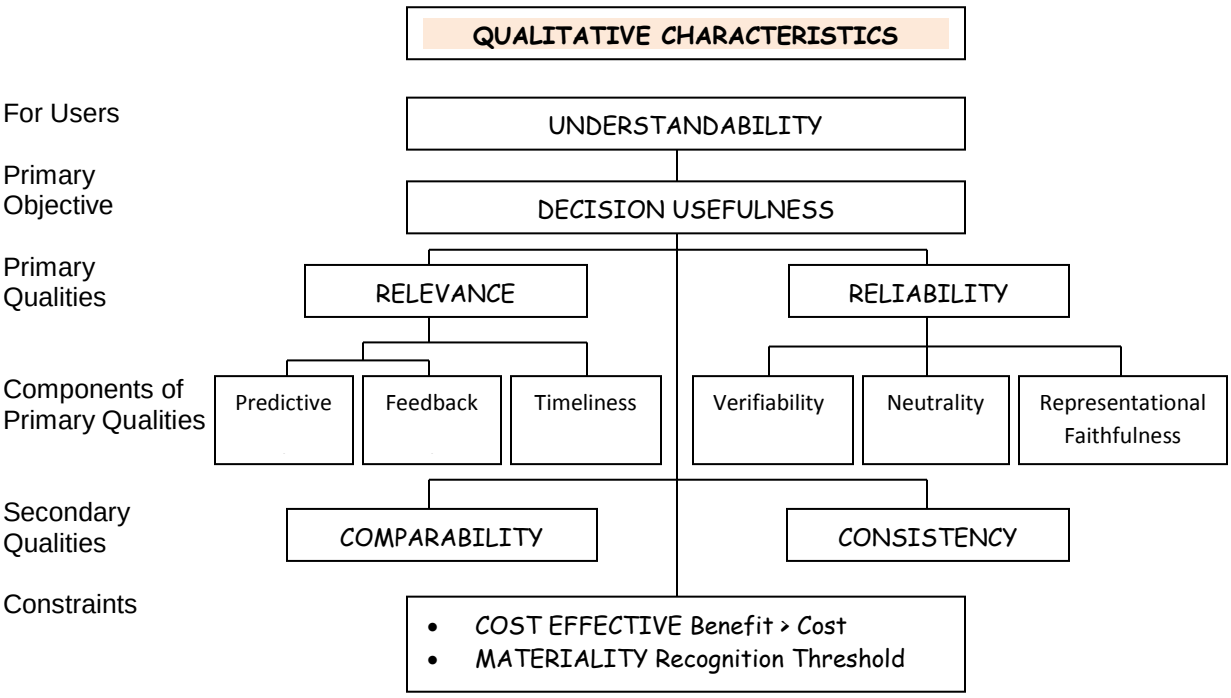
Cash flows from operating activities:		
Cash received from clients	$17,500	
Cash paid for supplies	($20,000)	
Cash paid for rent	($2,500)	
Cash paid for salaries	($1,500)	($6,500)
Cash flows from investing activities:		
Purchase of property, plant & equipment	($35,000)	($35,000)
Cash flows from financing activities:		
Cash received for common stock	$50,000	
Dividends paid in cash	($5,000)	$45,000
Net increase in cash		$3,500
Cash balance, beginning		$0
Cash balance, ending		$3,500

Appendix A

Qualitative Characteristics of Accounting Information

***Qualitative Characteristics* of Accounting Information**

The below introduces the basic structural hierarchy of accounting qualities:



Primary and Secondary Qualities of Accounting Information

Primary qualities include relevance and reliability; secondary qualities include comparability and consistency.

- *Relevance* suggests that accounting information possesses the potential to make a difference in the decision-making process. To be relevant, financial information must have (1) predictive or (2) feedback value and must be made available to the decision-maker in a (3) timely manner.
- *Reliability* suggests that accounting information is (1) verifiable, is (2) a faithful representation and is (3) reasonably free from error and bias or is neutral. Verifiability is comparable to objectivity, in that it suggests that independent parties using the same measurement methods will achieve similar results or arrive at comparable conclusions.

- *Comparability* suggests similarity with respect to reporting methods and techniques to facilitate user ease in identifying differences.
- *Consistency* suggests similarity with respect to measurement methods and techniques to facilitate user ease in identifying differences.

Assumptions of Accounting Information

Basic assumptions underlying the financial accounting structure or framework include the

1. *Business* or *Economic entity* assumption, which presumes that transactions can be identified with a particular firm or entity, separable from other entities (e.g., department, division, subsidiary and firm).
2. *Going concern* assumption, which presumes the firm to have an unlimited or long life. This assumption justifies the use of historical cost. If, alternatively, we assumed that the firm was about to fail or liquidate, the financial statements would be more useful if adjusted to liquidation or net realizable value (NRV) and recording depreciation, depletion or amortization expenses would serve no purpose.
3. *Monetary unit* assumption, which assumes, for example, that U.S. firms and their use of the U.S. dollar is justified as this monetary unit is relevant, easy to use, universally available, understandable, stable and, therefore, useful. Price-level changes from inflation and deflation are ignored under this assumption. In cases of very high or hyper-inflation, for example, this assumption would fail to remain applicable and/or inflation-accounting might replace historical cost.
4. *Periodicity* (*Time*) assumption, which allows for economic positions and results to be divided into artificial time periods (e.g., months, quarters and years).

Principles of Accounting Information

Basic principles of accounting used to record transactions include the

1. *Historical cost* principle, under U.S. GAAP, continues to require that most assets and liabilities be accounted for and reported at cost. This is an objective and reliable measure, and, at the date of acquisition, historical cost and fair market value (FMV)[12] are presumed to represent equivalent measures.
2. *Revenue recognition* principle provides guidance on when revenues are to be recorded. Revenue is recognized when (1) earned – when services are provided or the ownership of goods is transferred, (2) is not dependent on cash receipt – a sale may be made on credit terms, and (3) is measured at the FMV of cash and other consideration received.
3. *Matching* principle requires that the expense follow or be matched with the revenue. In some cases, a "rational and systematic" method of allocation is used when the matching principle is not otherwise clear or apparent. It is helpful to classify costs as product (e.g., direct material, direct labor and manufacturing overhead) and period (non-product) costs, when applying the matching principle.
4. *Full disclosure* principle requires that note or footnotes and supplemental information be provided in addition to the basic financial statements.

[12] Defined as the value at which an exchange takes place, when neither the buyer nor seller is under any pressure or compulsion to buy or sell.

Constraints to Accounting Information

Constraints to accounting information and usefulness include the

1. *Cost-benefit relationship*, as the production of information is not free.
2. *Materiality*, as immaterial (or insignificant) items, a matter of professional judgment, may not provide added value or decision-usefulness to users and may even distract users of financial information from relevant matters.
3. *Industry practice* may take priority in some industries (e.g., commodities).
4. *Conservatism* requires that, when in doubt, select the solution that is least likely to overstate assets and income.

Types of Business Organization

There are 3 basic forms of business organization:

- Sole Proprietorship or Proprietorship:[13] This business form has only 1 owner and is a separate accounting entity, but not a separate legal entity, leading to unlimited liability.
- Partnership (General or Limited) or Limited Liability Partnership (LLP) or Limited Liability Company (LLC):[14] This business form has 2 or more partners and is formed through an oral or written agreement, which outlines how income and losses are to be shared or distributed to the partners. General partners have unlimited or joint and several liability with respect to the liabilities incurred by the partnership, but there are 3 forms of partnerships that may limit the liability exposure by certain classes of partners.
  - Limited Partnership (LP): An LP has both general and limited partners, where limited partners are called "limited" partners, because their liability is limited.[15] General partners participate in the day-to-day management of the partnership and are jointly and severally liable.
  - LLP: An LLP limits a partner's liability to events evolving from their own actions (or the actions of those under their control), protecting an uninvolved partner from the negligent actions of another partner. However, all partners remain responsible for partnership debts.
  - LLC: An LLC provides for the limited liability of a corporation, which is a separate legal entity, but it taxed like a partnership.
- Corporation (C or S):[16] This business form represents a separate legal entity with an unlimited life. Generally, shareholders or stockholders are not personally liable for

[13] These entities use and attach a Schedule C or F (for farms and ranches) to their Form 1040 to report taxable profits to the IRS.

[14] These entities use a Form 1065 to report the character of income and expense items to the IRS. Partners receive a Form K-1, based on their distributive share of the 1065 line items, and use this information to prepare their individual Form 1040.

[15] While state laws dictate, generally, limited partner losses are limited to their investment plus any assessments that may be provided for in the partnership agreement.

[16] C Corporations are tax-paying entities and file a Form 1120 with the IRS. S Corporations are non-tax-paying entities and file a Form 1120S with the IRS. Each

corporate actions or debts. Ownership is divided into shares of stock. Under the Internal Revenue Code (IRC), there are 2 corporate forms or IRC subsections.

- C Corporation: Most of the firms listed on US stock exchanges are C corporations and taxed at the corporate level and a second time, for dividends, when paid and at the individual stockholder level. This double-taxation of dividends is one of the disadvantages of this corporate form.
- S Corporation: This form of organization is not subject to double-taxation, as is the case with the C corporation. Shareholders of S corporations are taxed like partners in a partnership.

shareholder receives a Form K-1 from the S Corporation to prepare their individual Form 1040.

Appendix B

Return on Assets

[Risk & Return]

Revenues are often referred to as the "top line" and net income (NI) is often referred to as the "bottom line." Therefore, when firms produce their quarterly or annual financial statements, reference will be made to "top line growth" and "bottom line growth."

Revenues (top line)	**$3,500**
Expenses	**$2,500**
Net Income (bottom line)	**$1,000**

Net income or the bottom line makes it possible to compute the "return" or "rate of return." A common or popular measure of the rate of return is return on assets (ROA). It represents net income divided by assets employed to generate this return:

Return on Assets = Net Income ÷ Assets

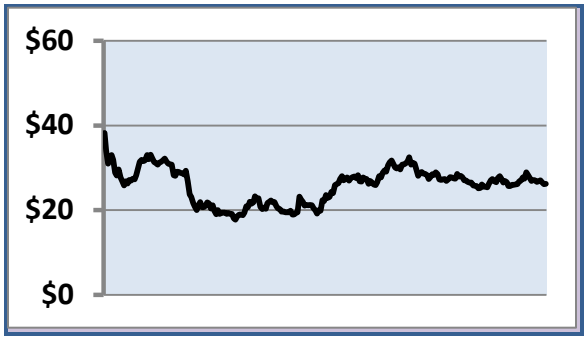
For example, if we assume that assets in the amount of $10,000 were required to generate the net income of $1,000 in the above example, our return on assets would be 10%:

10% = $1,000 ÷ $10,000

Rates of return vary for alternative investments. Investing in a savings account or U.S. Treasury securities might generate a rate of return or return on assets at 1% or 2%, with little or no risk. Alternatively, we might decide to invest in a firm's stock, where a rate of return or return on assets invested might be higher, but is less assured and represents a higher risk. There is a risk versus return trade-off.

Varying levels of risk can be associated with varying levels of both return and uncertainty. Higher risk suggests higher levels of uncertainty. Lower risk suggests lower levels of uncertainty. You might, for example, prefer to invest your cash or assets in Facebook stock instead of a savings account, hoping for a higher return, but there is less certainty with this investment in Facebook stock, which is riskier.

For example, below is a graph of the closing price per share of Facebook stock for the first twelve months after the firm's IPO on May 18, 2012:



The high stock price of $45 per share occurred on this IPO date. Despite this high IPO date price per share, the stock closed at only $38.23 per share. The stock closed at $26.25 per share, one year later, on May 17, 2013.

Therefore, if you purchased one share of Facebook stock at the closing price of $38.23 per share on May 18, 2012, one year later, on May 17, 2013, you generated a negative return or net loss on assets, in this case, the cash you invested:

May 17, 2013 Closing Price per Share	$26.25
May 18, 2012 Closing Price per Share	$38.23
Negative Return or Net Loss	$11.98

Investing in Facebook was a risky investment. Your rate of return, after the first year, is negative:

$26.25 ÷ $38.23 = 69% - 100% = -31%

or

$26.25 ÷ $38.23 = $(11.98) ÷ $38.23 = -31%

If Facebook stock returns to its high price of $45, the rate of return would be favorable, as follows:

$45.00 ÷ $38.23 = 118% - 100% = 18%

or

$45.00 ÷ $38.23 = $6.77 ÷ $38.23 = 18%

Appendix C

Framework for Business Activities

There are three major classifications of business activities: operating, investing and financing. Operating, investing and financing activities represent all components of a firm's balance sheet, as follows:

Assets	=	*Liabilities*	+	*Owners' Equity*	*Activity*
Current		*Current*		*Net Income/(Loss)*	*OPERATING*
Non-Current					*INVESTING*
		Non-Current		*Equity*	*FINANCING*

1-Operating Activities

Operating activities or operations are financed with current assets and current liabilities or working capital. Generally, current assets include cash and those assets expected to result in cash inflows during the next operating period or cycle and current liabilities include those liabilities expected to result in cash outflows during the next operating period or cycle. Current assets less current liabilities represent the capital that the firm will "put to work" or use to operate over the next operating period or cycle. It is called "working capital," as follows:

Current Assets – Current Liabilities = Working Capital used for Operations

If working capital is a negative amount, there is a serious risk that the firm will not be able to continue to operate during the current operating period or cycle. Therefore, negative working capital suggests that firm might actually cease to represent a "going concern."

2-Investing Activities

Investing activities or investments are made and take the form of long-term or non-currents assets, including property, plant and equipment and investments in stocks and bonds of other firms. Over time, these investments in non-current assets might be purchased or sold.

Non-Current Assets = Investment

3-Financing Activities

Financing activities or financing is achieved through the sale of bonds or other long-term borrowings and/or the sale of stock or equities. Bond holders receive interest, and expense to the firm and resulting in the reduction of the firm's net income. Stock holders receive dividends. Dividends are paid from net income and reduce the earnings retained by the firm. Over time, stocks and bonds might be issued by the firm to fund long-term activities.

Non-Current Liabilities + Equities = Financing

Chapter 2[1]

Accounting for Business Transactions & Journalizing

Learning Objectives

- Explain the steps involved in processing transactions, in their proper sequence.
- Provide examples of source documents for a cash disbursement, cash receipt, sale and purchase.
- Describe an account, journal, ledger and chart of accounts.
- Provide examples of accounts in a chart of accounts and how they are used to summarize and record transactions.
- Analyze the impact of transactions on individual accounts and financial statements.
- Provide examples of cash-based transactions.
- Provide examples of noncash-based or accrual-based transactions.
- Provide examples of transactions including both cash and accruals.
- Record a variety of transactions in a journal or original book of entry.
- Post entries to the ledger or general ledger.
- Explain the usefulness of a trial balance.
- Prepare financial statements.
- Compute the debt ratio and describe its usefulness in analyzing financial information.

[1] Acknowledgement: An earlier version of this chapter was provided to all accounting faculty on October 31, 2014, for review notes, comments, and recommendations for improvement. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

Professor Halsey joined West Chester University in the fall of 2010. He began his legal career as a Pennsylvania and New Jersey attorney, providing legal advice primarily in the corporate law areas of tax, business and business transition planning for business owners and high net worth clients. His academic career included ten years as the senior member of the Legal Studies faculty at Peirce College, where he attained the rank of Full Professor before he joined the West Chester faculty full-time in 2010.

Professor Halsey is also very active in legal academic and professional organizations. He is past President of the Mid-Atlantic Academy of Legal Studies in Business (MAALSB) and he has been Editor-In-Chief of the *Atlantic Law Journal* since 2009. He has also served on the West Chester Borough Planning Commission.

- B.A. Shippensburg University of Pennsylvania
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- LL.M. Villanova University School of Law
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- Licensed to practice before the Bar of the Eastern District of Pennsylvania

Professor Belak worked in industry as a financial analyst and senior financial analyst and for a firm preparing individual and business federal and state tax returns. She is a member of the Pennsylvania Institute of Certified Public Accountants (PICPA) and the Association of Certified Fraud Examiners (ACFE). Professor Belak has returned to her alma mater to teach Managerial Accounting, Fraud Examination for Managers, and Governmental and Not-For-Profit Accounting. Her research interests involve topics related to Fraud Examination and Tax. She has published in the *Pennsylvania CPA Journal* and *Journal of Business Case Studies*.

- B.S. West Chester University of Pennsylvania
- M.B.A. Drexel University
- C.P.A. Commonwealth of Pennsylvania
- C.F.E. International credential

DHS Ebola preparedness failings detailed in hearing Everett Rosenfeld Friday, 24 Oct 2014 | 12:20 PM ETCNBC.com

Growing health threat: Ebola in NYC. A doctor in New York City has tested positive for Ebola after recently treating patients with the virus in Guinea.

Several federal preparedness errors, ***including poor record keeping and missing supplies*** (emphasis added), were outlined Friday at a House Oversight and Government Reform Committee hearing on Ebola.

Analyzing and Recording

Accounting is a process that identifies and produces financial statements from business transactions. These transactions must be organized, in some fashion, using a systematic, rational and methodical approach.

The accounting process begins when transactions are analyzed. Then, these transactions are recorded in a journal (original book of entry) and posted in a ledger, before a trial balance is prepared and financial statements can be produced.

Analyze Transactions → **Record in Journal** → **Post in Ledger** → **Prepare Trial Balance**

Source Documents

Source documents might be available in hard copy or electronic form:

- A check is an example of a source document for a cash disbursement.
- A deposit slip is an example of a source document for a cash receipt.
- A sales invoice, whether the sale was for cash, credit, or a mixture of both, is an example of a source document for a sales or revenue transaction.
- A bill from a supplier, whether paid in cash, provided on credit, or a mixture of both, is an example of a source document for a purchase or cost of goods sold or some expense transaction.

These examples are summarized, below:

Transaction	Source Document Example
Cash disbursement	check
Cash receipt	deposit slip
Sales or revenue	sales invoice
Cost of goods sold or purchase or expense	bills from suppliers

Cash disbursements and cash receipts are eventually confirmed by an external source or source document, when the firm receives its bank statement. Sales and purchase invoices are often prepared in multiple copies or electronically, where the sales invoice represents an internal source document and the purchase order represents an internal source document. The latter is supported by and can be matched to a bill or external source document from the supplier at some later date.

Account Analysis
An account is provided for each asset, liability, equity, revenue, and expense item. Transactions occurring within and affecting an account are summarized for financial statement presentation. Prior to summarizing these transactions, each account is analyzed.

All accounts are separately summarized in a ledger or general ledger. All of this information, including the general ledger, can be stored in paper or electronic form, or a combination of both. Detailed account information is recorded in the general ledger, where all accounts used by a firm are summarized in what is called a chart of accounts. The accounts used by a firm are classified into three general categories, as follows:

ASSETS = LIABILITIES + EQUITY

Assets
Assets are economic resources owned and/or controlled by a firm, and expected to produce future benefits. Example of assets and their definitions are summarized below. They are presented in order of liquidity, where the most liquid asset, cash, is the most liquid and listed first, as follows:

ASSETS
Cash
Accounts receivable
Notes receivable
Prepaid expenses
Supplies
Equipment
Buildings
Land

- **Cash** accounts represent balances in a firm's bank accounts. A firm may have more than one account. Cash includes coins, money orders, checks, savings accounts, and checking accounts.
- **Accounts receivable** evolve from credit sales to a customer or client. They are increased by credit sales to customers and decreased when the customer makes a payment or payments. Separate accounts must be maintained for each customer to

keep track of the amount of credit extended to each customer and the payments made and the balance due from each customer.

- **Notes receivable** usually evolve from a promissory note. Notes receivable may be interest bearing or non-interest bearing and short-term or long-term.
- **Prepaid expenses** represent prepayments. Examples include prepaid insurance premiums and prepaid rent. As these prepayments expire or are consumed, through the passage of time, they are converted from their asset status to an expense. Until consumed, these prepayments are correctly classified as and considered assets. For example, assume that you pay six months of car insurance in January 1. One-sixth of this prepayment is an expense for January; one-sixth of this prepayment is an expense for February; and so on, until this prepaid asset is completely consumed (or expensed) through June.
- **Supplies** remain assets until consumed and expensed. There may be more than one category of supplies, and they would be accounted for separately. For example, office supplies and work shop supplies would be accounted for in separate accounts.
- **Equipment** represents a long-lived asset that wears out over time. As was the case for supplies, we might have more than one category or classification of equipment. For example, office equipment and work shop equipment would be accounted for in separate accounts. Regardless of the type of equipment, as it wears out, we will record an expense known as depreciation expense.
- **Buildings** also represent an asset that wears out over time. Again, as the building deteriorates or wears out, we will record an expense known as depreciation expense.
- **Land** is an asset that does not wear out over time. Because land does not wear out, we do not have to record any wear or depreciation for land. Since land does not wear out or depreciate and buildings do depreciate, we record land and buildings in separate accounts.

Liabilities

Liabilities are claims by creditors against assets and/or economic resources owed by a firm and requiring transfers to others. Examples of liabilities, where the most liquid liability is that claim against assets that is expected to be paid first, follow:

LIABILITIES
Accounts payable
Notes payable
Unearned revenues
Accrued liabilities

- **Accounts payable**, like accounts receivable, evolve from credit purchases, however, in this case, the firm is recording the account payable for a customer or client. This account is increased by credit purchases and decreased when a payment or payments are made. Separate accounts must be maintained for each

creditor to keep track of the amount of credit extended and the payments made and the balance due to each supplier.

- **Notes payable**, again, usually evolve from a promissory note. Notes payable may be interest bearing or non-interest bearing and short-term or long-term.
- **Unearned revenues** represent a liability until the amount, received in advance, is earned. When earned, unearned revenue is converted from its liability status to revenue.
- **Accrued liabilities** represent amounts owed, but not yet paid. They include wages payable, taxes payable, interest payable, and other payables. These amounts are determined at the end of each accounting period by conducting an account analysis.

Assets and Liabilities

By now, you may have noticed some logical connections between certain asset and liability accounts.

- An account receivable on your firm's books represents an account payable on another firm's books. The reverse is also true.
- The same may be said for notes receivable and notes payable.
- In the case of prepaid expenses, your prepaid rent is unearned rent for another firm or entity. Again, the reverse is true. Prepaid expenses and unearned revenues might apply to a variety of revenue and expense items, and are not confined to insurance and rent.

ASSETS	LIABILITIES
Accounts receivable	Accounts payable
Notes receivable	Notes payable
Prepaid expenses	Unearned revenues

If assets are amounts you own and liabilities are amounts you owe, we must account for the difference between these measures. In accounting, this difference is referred to as equity, and can be presented, as follows:

ASSETS – LIABILITIES = EQUITY

and

ASSETS = LIABILITIES + EQUITY

Equity

The owner of a firm has a claim on the net assets (assets minus liabilities) or equity of the firm. Equity is also referred to as *stockholders' equity*, *shareholders' equity*, or *owners' equity*. It is the residual interest in a business.

Equity is increased by revenues and decreased by expenses. Therefore, equity is increased by net income and decreased by net loss, as follows:

	Revenues	**Revenues**
less:	**Expenses**	**Expenses**
equals:	**Net Income**	**Net Loss**

The above equation can be expanded:

ASSETS = LIABILITIES + EQUITY (REVENUES – EXPENSES)

and

ASSETS = LIABILITIES + EQUITY (NET INCOME/(LOSS))

Dividends are paid to shareholders out of earnings or net income. This is an asset distribution to shareholders, as follows:

ASSETS = LIABILITIES + EQUITY (NET INCOME – DIVIDENDS)

Ledger and Chart of Accounts

The listing of all accounts and their balances is called a *ledger* or *general ledger* (GL). The *chart of accounts* lists all general ledger accounts, where a number is assigned to each account in a firm's chart of accounts.

A firm's chart of accounts lists the assets, liabilities, equities, revenues and expenses. It is a common practice for assets to be listed as 100s, liabilities as 200s, equities as 300s, revenues as 400s, and expenses as 500s and/or 600s. An illustration follows:

100	**Cash**
105	**Accounts receivable**
115	**Notes receivable**
125	**Prepaid expenses**
135	**Supplies**
140	**Equipment**
150	**Buildings**
160	**Land**
205	**Accounts payable**
215	**Notes payable**
225	**Unearned revenues**
235	**Accrued liabilities**
300	**Common stock**
310	**Retained earnings**
320	**Dividends**
400	**Revenue**
515	**Salaries expense**
525	**Rent expense**
535	**Supplies expense**
545	**Utilities expense**

It is helpful to assign account numbers in some fashion or pattern that makes it easier for the user to learn the chart of accounts and associate related account numbers. For example, note that supplies (135) and supplies expense (535) have the same account number suffix. Also, note that a similar pattern has been developed for accounts receivable (105) and accounts payable (235), as well as notes receivable (115) and notes payable (215).

Debits and Credits

A *T-account* represents a ledger or general ledger account. It has a left or debit side and a right or credit side. Debits are abbreviated as Dr or DR. Credits are abbreviated as Cr or CR.

Account Title	
Debit	Credit

Debits and credits do not mean increase or decrease. Whether a debit or credit is an increase or decrease depends on the account. Debits increase assets and expenses. Credits increase liabilities, equity and revenues.

Double-Entry Accounting

Double-entry accounting is used to maintain the accounting equation. Debits must always equal credits. If debits equal credits for each individual transaction, debits will equal credits in aggregate.

The T-accounts for assets, liabilities and equity are produced, below, where you should note that debits increase (+) assets and credits increase (+) liabilities and equity accounts. Alternatively, credits decrease (-) assets and debits decrease (-) liabilities and equity accounts.

Assets		=	Liabilities		+	Equity	
Debit	Credit		Debit	Credit		Debit	Credit
+	-		-	+		-	+

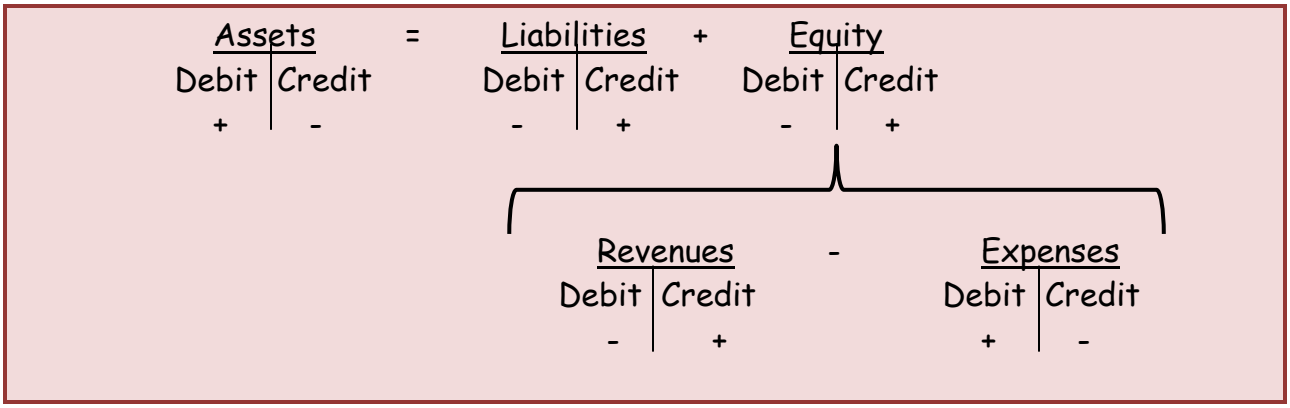
Typical (or normal) balances for assets are debits and typical (or normal) balances for liabilities and equity accounts are credits, as follows:

Assets	=	Liabilities	+	Equity
Debit		Credit		Credit

Alternatively, debits can be shown to equal credits, as follows:

Assets	=	Liabilities	+	Equity
Debits	=	Credits	+	Credits

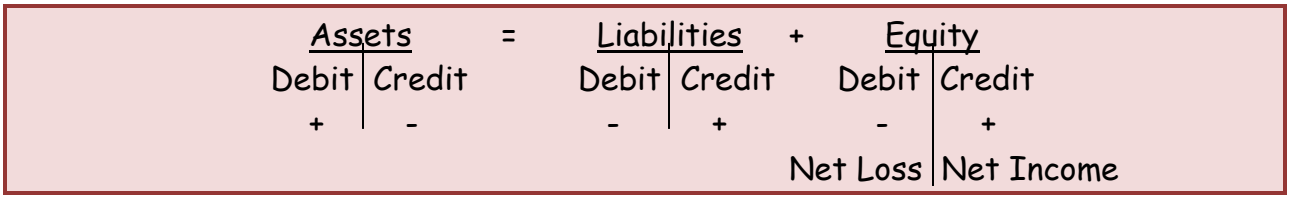
The above can be expanded to include revenues and expenses, where revenues are increased with credits and expenses are increased with debits, as follows:



Revenues are increased with credits. Expenses are increased with debits.

- If revenues are greater than expenses, the firm generates net income or net credit. Net income increases equity (see the above).
- If revenues are lower than expenses, the firm generates net loss or net debit. Net loss decreases equity (see the above).

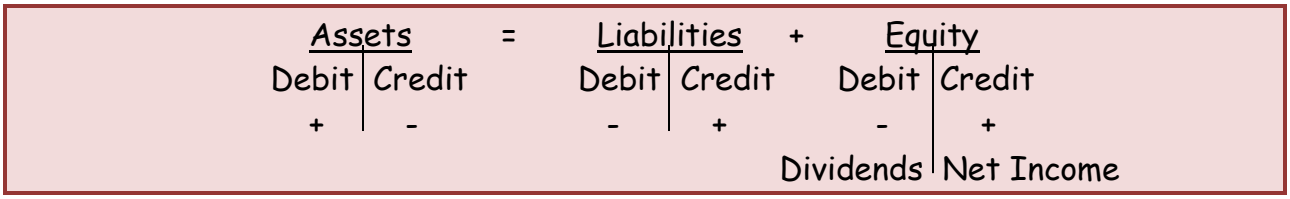
Net income (NI) increases equity and net losses (NL) decrease equity, as follows:



Assets, liabilities and equity are balance sheet accounts. Revenues and expenses are income statement accounts. These financial statements are described later in the chapter.

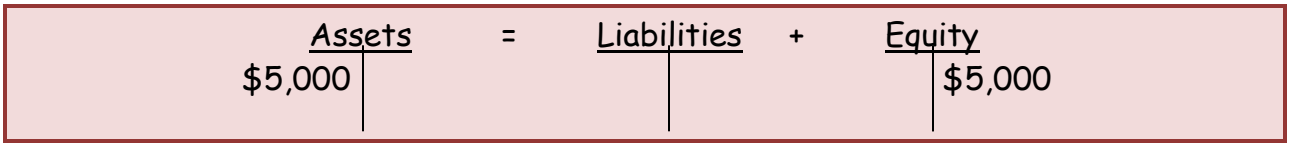
Other accounts also impact the equity account.

Profitable firms may decide to pay dividends to stockholders or those with an equity interest in the firm. These dividends are paid from profits or net income, as follows:



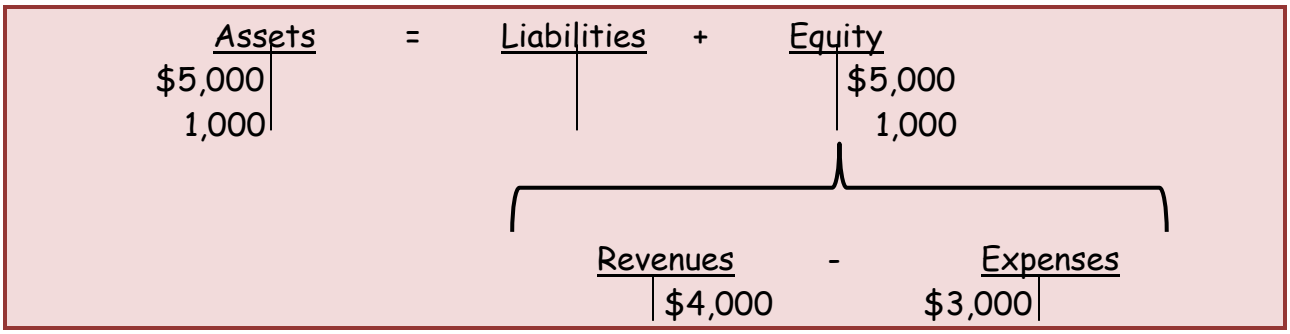
An Illustration Focusing on Equity Transactions

To illustrate the impact of a variety of transactions on the equity account, assume that a new firm is formed with a cash-based capital contribution of $5,000. Cash of $5,000 is deposited in the firm's newly formed checking account, and $5,000 of common stock is issued, as follows:



Assets are increase by $5,000 cash. This is a debit. Equity is increased by $5,000 for the issuance of common stock, which represents *contributed capital*. This is a credit. Debits equal credits and assets equal liabilities plus equity.

Assume that $4,000 in revenues and $3,000 in expenses are generated during the first month of operations. This results in net income of $1,000 for the period. Net income results in an increase in net assets, the details of which are not presented, but will be explained later in the chapter. For now, focus in the fact that debits equal credits, Assets equals liabilities and equity, and the impact on the equity account, as follows:



Finally, assume that this profitable firm decides to pay $500 to equity owners in the form of a cash payment of dividends, as follows:

Assets	=	Liabilities	+	Equity
$5,000				$5,000
1,000				1,000
$500				$500
$5,500				$5,500

To summarize, focusing on the equity account, common stock or contributed capital was issued to form and capitalize the firm, Net Income was generated during the first month or period of operations, and some portion of this net income was distributed to common stock holders in the form of cash. Equity was increased with contributed capital, increased by net income for the period, and decreased as dividends were paid to common stock holders, as follows:

Assets	=	Liabilities	+	Equity
				Common Stock or Contributed Capital
				Net Income
			Dividends	

Journalizing and Posting Transactions
Accounting and accounting systems process transactions. This chapter began with the following, four step process:

Analyze Transactions → **Record in Journal** → **Post in Ledger** → **Prepare Trial Balance**

Journalizing
A journal is *an original book of entry*, where like transactions are summarized, monthly.

A cash receipts journal is used to record cash received and a cash disbursements journal is used to record cash disbursed. If you have ever had a checking account, simply imagine keeping a separate check register or "grossing up" the "net" subtotals to these cash transactions, separately, for (1) cash receipts and (2) cash disbursements. Cash receipts (debits to cash) are deposits or electronic transfers into the checking accounting. Cash disbursements (credits to cash) are checks written or electric or automatic transfers from the checking account. Separate, monthly cash disbursements and cash receipts journals are maintained for each checking account.

Of course, some transactions do not involve cash. A sale might be made on account or on credit and a purchase might be made on account or on credit. For credit sales, a (3) sales journal is used. For credit purchases, a (4) purchases journal is used. These separate journals result in credits to sales and debits to purchases, and are also maintained on a monthly basis.

Finally, for those transactions that do not involve the use of a (1) cash receipt, (2) cash disbursement, (3) credit sale, or (4) credit purchase, a (5) general journal is used. All accounting texts use the general journal entry format to illustrate the impact of the mechanics of debits and credits on accounts included in the firm's chart of accounts and, ultimately, used by the firm to produce financial statements. This chapter will introduce the use of the general journal entry format.

Each and every month, all of the (1) cash receipts, (2) cash disbursements, (3) credit sales, (4) credit purchases, and (5) general journal entries for the month are summarized or totaled and posted to the general ledger. This process is referred to as posting.

Analyzing Transactions from Chapter 1
Below is a summary of the transactions from Chapter 1.

				A	**=**	**L**	**+**	**E**			
	Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
(1)	+$50,000				=		+	+$50,000			
(2)	-$5,000		+$5,000		=		+				
	+$45,000		+$5,000		=		+	+$50,000			
(3)	-$35,000			+$35,000	=		+				
	+$10,000		+$5,000	+$35,000	=		+	+$50,000			
(4)	-$5,000		+$15,000		=	+$10,000	+				
	+$5,000		+$20,000	+$35,000	=	+$10,000	+	+$50,000			
(5)	+$5,000	+$5,000			=		+			+$10,000	
	+$10,000	+$5,000	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+$10,000	
(6)	-$4,000				=		+				-$4,000
	+$6,000	+$5,000	+$20,000	+$35,000	=	+$10,000	+	+$50.000		+$10,000	-$4,000
(7)	+$12,500	-$5,000			=		+			+$7,500	
	+$18,500	$0	+$20,000	+$35,000	=	+$10,000	+	+$50,000		+17,500	-$4,000
(8)	-$15,000				=	-$10,000	+		-$5,000		
	+$3,500	$0	+$20,000	+$35,000	+	$0	+	+$50,000	-$5,000	+$17,500	-$4,000

Note that all of these transactions involved cash. Therefore, all of these transactions could be more efficiently summarized in a (1) cash receipt journal and a (2) cash disbursements journal, as follows:

CASH RECEIPTS JOURNAL

Account	DR #100 Cash	DR/(CR) #105 Accounts Receivable	CR #300 Common Stock	CR #400 Revenues
(1)	$50,000		$50,000	
(5)	$5,000	$5,000		$10,000
(7)	$12,500	($5,000)		$7,500
Totals	$67,500	$0	$50,000	$17,500

There were 3 cash receipts during the period. Each and every single cash receipt involves a debit to the cash account. First, the checking account was initially established when $50,000 was deposited and used to issue common stock. Second, a sale involving cash was made, however, this $10,000 sale involved $5,000 in cash and $5,000 on account (an accounts receivable was established when credit was extended to the customer or client). Third, the accounts receivable of $5,000 was received

CASH DISBURSEMENTS JOURNAL

Account	CR #100 Cash	DR #135 Supplies	DR #140 [PP&E] Equipment	CR/(DR) #205 Accounts Payable	DR #320 Dividend	DR #515 [Expenses] Salary	DR #525 [Expenses] Rent
(2)	$5,000	$5,000					
(3)	$35,000		$35,000				
(4)	$5,000	$15,000		$10,000			
(6)	$4,000					$1,500	$2,500
(8)	$15,000			($10,000)	$5,000		
Totals	$64,000	$20,000	$35,000	$0	$5,000	$1,500	$2,500

There were 5 cash disbursements during the period. Each and every single cash disbursement involved a credit to the cash account. First, supplies were purchased at a cost of $5,000. Second, equipment was purchase at a cost of $35,000. Third, $15,000 in supplies was purchased with a $5,000 cash down payment and the remaining $10,000 owed to the supplier. The supplier extended credit to the firm. Fourth, salary ($1,500) and rent ($2,500) were paid, at a total cost of $4,000. Fifth and finally, a $15,000 cash disbursement was made to completely pay the accounts payable from item (4), the third cash disbursement in the above cash disbursements journal, and a $5,000 dividend.

Identify & Analyze

(1) The owner makes an investment of $50,000 to form his or her corporation and receives common stock.

			A	=	L	+	E			
Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
+$50,000				=		+	+$50,000			

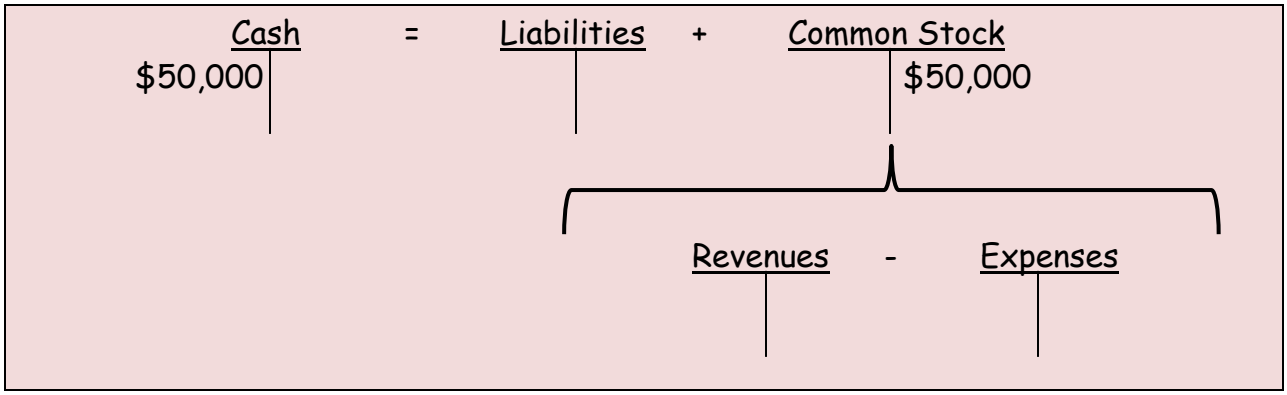
Record

Below is the transaction, presented in general journal form:

Cash	$50,000	
Common Stock		$50,000

Post

Below are the accounts in the general ledger that each component of the transaction will be posted to:



Notes: _____

Identify & Analyze

(2) The corporation purchases supplies for a cash payment of $5,000.

			A	=	L	+	E			
Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
-$5,000		+$5,000		=		+				

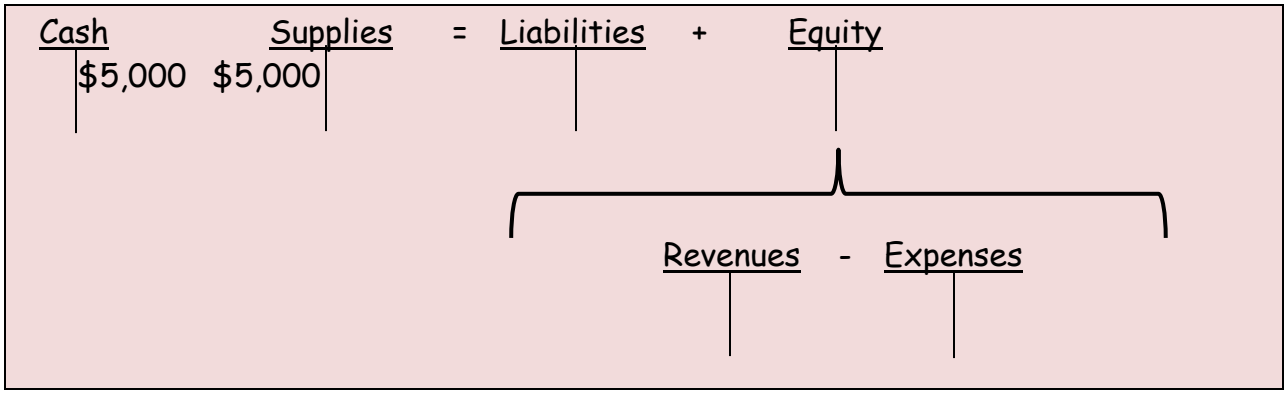
Record

Below is the transaction, presented in general journal form:

Supplies	**$5,000**	
Cash		**$5,000**

Post

Below are the accounts in the general ledger that each component of the transaction will be posted to:



Notes: _____

Identify & Analyze

(3) The corporation pays cash for equipment purchased at a cost of $35,000.

			A	=	L	+	E			
Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
-$35,000			+$35,000	=		+				

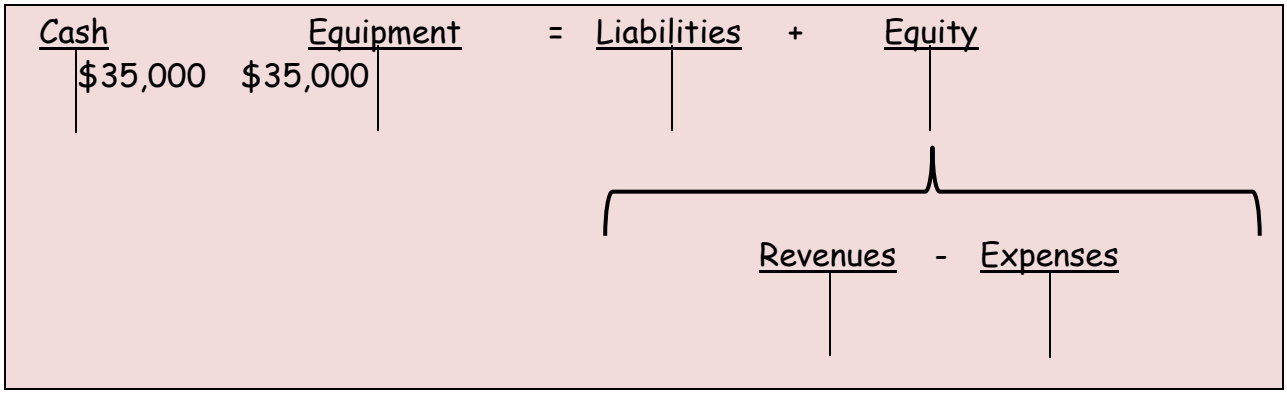
Record

Below is the transaction, presented in general journal form:

Equipment	**$35,000**	
Cash		**$35,000**

Post

Below are the accounts in the general ledger that each component of the transaction will be posted to:



Notes: _____

Identify & Analyze

(4) The corporation purchases additional supplies with a down payment of $5,000 in cash and $10,000 on credit.

			A	=	L	+	E			
Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
-$5,000		+$15,000		=	+$10,000	+				

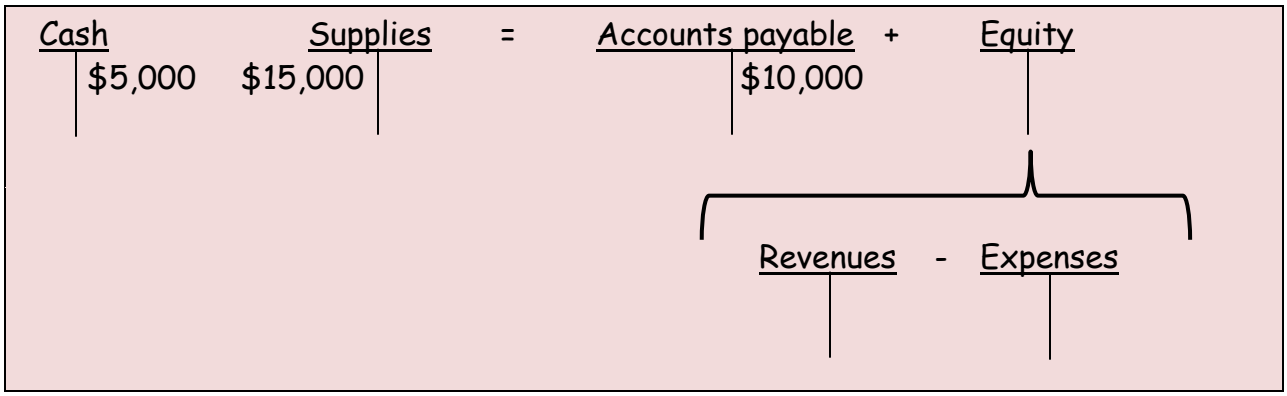
Record

Below is the transaction, presented in general journal form:

Supplies	$15,000	
Cash		$5,000
Accounts payable		10,000

Post

Below are the accounts in the general ledger that each component of the transaction will be posted to:



Notes: _____

Identify & Analyze

(5) The corporation completes professional services for $10,000, where $5,000 was paid immediately and the remaining $5,000 is due within 30 days.

			A	=	L	+	E			
Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
+$5,000	+$5,000			=		+			+$10,000	

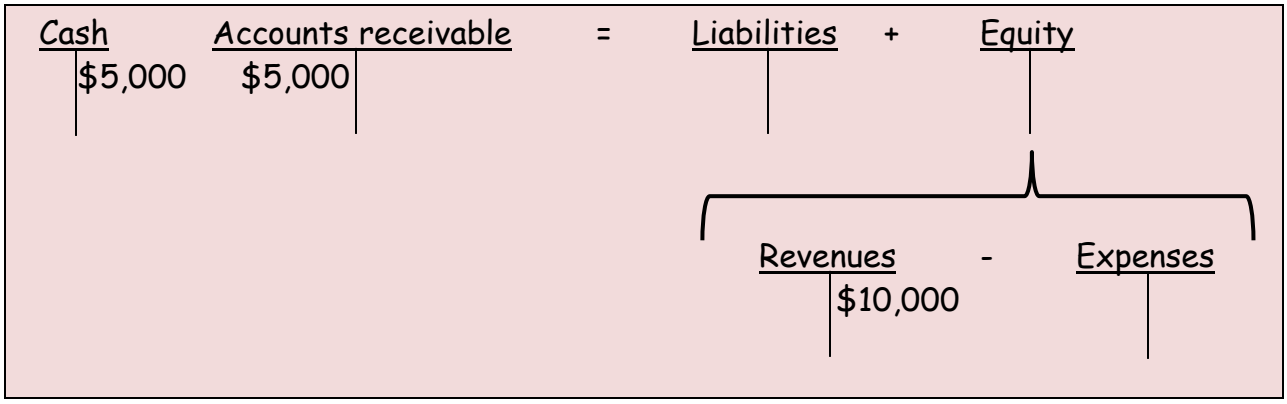
Record

Below is the transaction, presented in general journal form:

Cash	**$5,000**	
Accounts receivable	**5,000**	
Revenue		**$10,000**

Post

Below are the accounts in the general ledger that each component of the transaction will be posted to:



Notes: _____

Identify & Analyze

(6) The corporation pays $2,500 monthly rent expense and $1,500 monthly salary expense in cash. If each of these expenses had been paid separately, with two separate checks, a stronger audit trial would be established and available for later review and this practice would provide for stronger internal control. The corporation agrees to apply this preferred practice for future disbursements.

			A	=	L	+	E			
Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
-$4,000				=		+				-$4,000

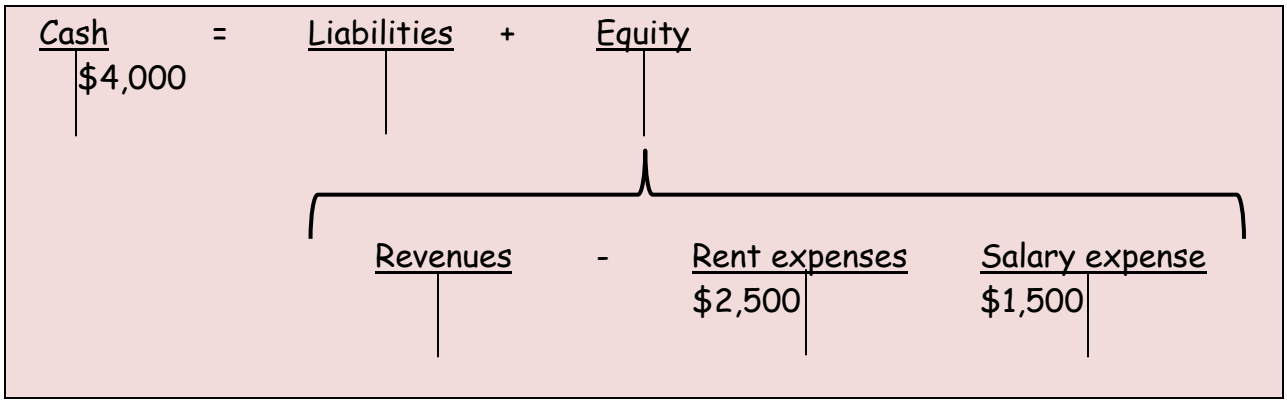
Record

Below is the transaction, presented in general journal form:

Rent expense	$2,500	
Salary expense	$1,500	
Cash		$4,000

Post

Below are the accounts in the general ledger that each component of the transaction will be posted to:



Notes: _____

Identify & Analyze

(7) The corporation completes professional services for $7,500 received in cash. The corporation also receives the $5,000 balance (see item (5)) from a prior engagement.

			A	=	L	+	E			
Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
+$12,500	-$5,000			=		+			+$7,500	

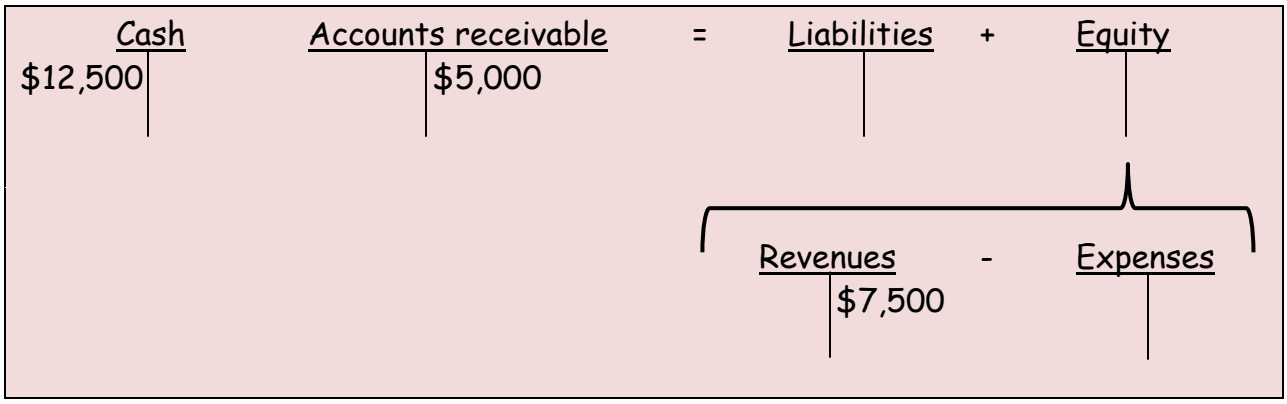
Record

Below is the transaction, presented in general journal form:

Cash	$12,500	
Accounts receivable		$5,000
Revenue		7,500

Post

Below are the accounts in the general ledger that each component of the transaction will be posted to:



Notes: _____

Identify & Analyze

(8) The corporation pays the $10,000 trade account payable (AP) (see item (4)) and declares and pays a dividend of $5,000.

			A	=	L	+	E			
Cash	AR	Supplies	PP&E	=	AP	+	CS	Dividends	Revenues	Expenses
-$15,000				=	-$10,000	+		-$5,000		

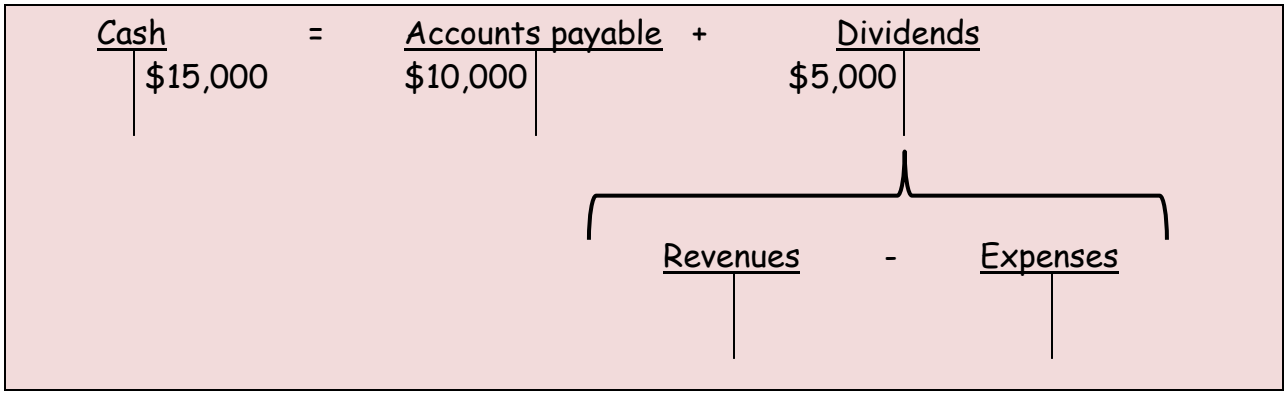
Record

Below is the transaction, presented in general journal form:

Accounts payable	**$10,000**	
Dividends	**5,000**	
Cash		**$15,000**

Post

Below are the accounts in the general ledger that each component of the transaction will be posted to:



Notes: _____

The below summarizes all of the above transactions in a general ledger or T-Account form, which was not produced or provided in Chapter 1. Note that all balances are double underlined and assets = liabilities + owners' equity (or debits = credits), as follows:

Assets	=	Liabilities	+	Equity

#100 **Cash**

(1) $50,000	(2) $5,000
(5) $5,000	(3) $35,000
(7) $12,500	(4) $5,000
	(6) $4,000
	(8) $15,000
Bal. $2,500	

#105 **Accounts Receivable**

(5) $50,000	(7) $5,000
Bal. $-0-	

#135 **Supplies**

(2) $50,000	
(7) $15,000	
Bal. $20,000	

#140 **Equipment**

(3) $35,000	
Bal. $35,000	

#205 **Accounts Payable**

	(4) $10,000
(8) $10,000	
Bal. $-0-	

#300 **Common Stock**

	(1) $50,000
	Bal. $50,000

#320 **Dividends**

(8) $5,000	
Bal. $5,000	

#400 **Revenues**

	(5) $10,000
	(7) $7,500
	Bal. $17,500

#515 **Salary Expense**

(6) $1,500	
Bal. $1,500	

#525 **Rent Expense**

(6) $2,500	
Bal. $2,500	

Assets	=	Liabilities	+	Equity
$58,500		$-0-		$58,500

Recall that this same data and fact patterns were used and presented in Chapter 1, as follows:

	A	=	L	+	E
Cash	$3,500				
AR	$0				
Supplies	$20,000				
PP&E	$35,000				
AP			$0		
CS					$50,000
Dividends					-$5,000
Revenues					$17,500
Expenses					-$4,000
	$58,500	=	$0	+	$58,500

Alternatively, the same data and fact patterns can be summarized and organized by debit and credit, in the traditional *trial balance* format, as follows:

Soltis Corporation
Trial Balance
For the Month Ended December 31, 2013

	Debit	Credit
Cash	$3,500	
Accounts receivable	$0	
Supplies	$20,000	
Property, plant & equipment	$35,000	
Accounts payable		$0
Common stock		$50,000
Dividends	$5,000	
Revenues		$17,500
Salary expense	$1,500	
Rent expense	$2,500	
Totals	$67,500	$67,500

The above trial balance is used to confirm that debits equal credits. Notice that the trial balance follows the same sequence as the chart of accounts, provided earlier in this chapter. It is reproduced below:

100	Cash
105	Accounts receivable
115	Notes receivable
125	Prepaid expenses
135	Supplies
140	Equipment
150	Buildings
160	Land
205	Accounts payable
215	Notes payable
225	Unearned revenues
235	Accrued liabilities
300	Common stock
310	Retained earnings
320	Dividends
400	Revenue
515	Salaries expense
525	Rent expense
535	Supplies expense
545	Utilities expense

The Soltis Corporation had a zero balance for accounts receivable and accounts payable at the end of the first month of operations. Quite a few accounts in the above chart of accounts were not used during this first month of operations.

Revenue, expense and the dividends account will have to be closed out to retained earnings, so some adjustments will be made to the format trial balance, after the income statement is prepared. Revenue and expense accounts are referred to as *temporary* or *nominal* accounts, since they are closed (or zeroed) out to an income summary account, and, eventually, to a retained earnings account at the end of each accounting period. The dividends account is a *contra equity* account, and is also closed out to the retained earnings account at the end of each accounting period.

The income statement is presented below, in a slightly expanded form from that originally presented in Chapter 1:

Soltis Corporation
Income Statement
For the Month Ended December 31, 2013

Revenues		$17,500
Expenses:		
Salary expense	$1,500	
Rent expense	2,500	$4,000
Net Income		$13,500

The income statement has been prepared, so the revenue and expense accounts can be closed out to the income summary account to reflect the zero beginning balances in these temporary or nominal accounts for the next period or month of operations, as follows:

Income summary	$4,000	
Salary expense		$1,500
Rent expense		$2,500

Revenue	$17,500	
Income summary		$17,500

The income summary account, now, summarizes income. Net income was $13,500 for the period. However, recall that $5,000 of these "earnings" was paid out in dividends. Therefore, only $8,500 was retained, as originally presented in Chapter 1, and as follows:

Soltis Corporation
Statement of Retained Earnings
For the Month Ended December 31, 2013

	Retained Earnings, Beginning	$0
plus:	Net Income	$13,500
		$13,500
less:	Dividends	$5,000
equals:	Retained Earnings, Ending	$8,500

The statement of retained earnings has been prepared. The income summary account balance of $13,500 and the (contra equity) dividends account balance of $5,000 can be closed out to the retained earnings account, as follows:

Income summary	$13,500	
Retained earnings		$13,500

Retained earnings	$5,000	
Dividends		$5,000

The following actions have been taken, since preparing the trial balance:

1. The income statement has been prepared.
2. The revenue account balances have been closed out to the income summary account.
3. The expense account balances have been closed out to the income summary account.
4. Having summarized income, the income summary account has been closed out to the retained earnings account.

5. The dividends account balance has been closed out to the retained earnings account.

At this time, having closed out all temporary and nominal accounts, a post-closing trial balance can be prepared. Those accounts with zero balance (e.g., accounts receivable and accounts payable) are not presented. The post-closing trial balance, with all balance sheet or real account balances, is presented, as is the balance sheet, below:

Soltis Corporation
Post-Closing Trial Balance
For the Month Ended December 31, 2013

	Debit	Credit
Cash	$3,500	
Supplies	$20,000	
Property, plant & equipment	$35,000	
Common stock		$50,000
Retained earnings		$8,500
Totals	$58,500	$58,500

Soltis Corporation
Balance Sheet
December 31, 2013

Assets

Cash	$3,500
Supplies	$20,000
Property, plant & equipment	$35,000
Total assets	$58,500

Liabilities and Owners' Equity

Common stock	$50,000
Retained earnings	$8,500
Total equities	$58,500

Additional Transactions and Analysis

Transactions can be purely cash-based (or cash basis), purely accrual-based (or accrual basis), or a combination of cash and accrual based. Quite a few examples of a variety of transactions are provided below, where they are presented in general journal entry form and without any dollar amounts or measures or descriptions. You should use this as a self-test to identify any weaknesses. Focus on understanding the debits and credits and the mechanics of these transactions and the accounts involved. Most find the purely cash-based or cash basis transactions easier and the purely or combined accrual-based or basis transactions more difficult.

Examples of Transactions – Cash Receipts (Cash Basis)
Examples of transactions involving only cash receipts include (a) issuing common stock for cash, (b) providing services for cash, (c) receiving cash on an **account receivable** for services already provided on account, and (d) receiving cash, in advance, for services to be provided. All include a debit to cash and are summarized, below:

(a) Issuing common stock for cash:

Cash	$XXX	
Common stock		$XXX

(b) Providing services for cash:

Cash	$XXX	
Revenues		$XXX

(c) Receiving cash on an **account receivable** for services already provided on account:

Cash	$XXX	
Accounts receivable		$XXX

(d) Receiving cash, in advance, for services to be provided:

Cash	$XXX	
Unearned revenues		$XXX

Examples of Transactions – Cash Disbursements (Cash Basis)
Examples of transactions involving only cash disbursements include (e) purchasing and paying for equipment with cash, (f) paying rent expense with cash, (g) paying salaries expense with cash, (h) paying utilities expense with cash, (i) paying an **account payable** to a supplier for a credit purchase with cash, (j) paying of a cash dividend with cash, (k) prepaying a six month insurance policy with cash, and (l) purchasing and paying for supplies inventory with cash. All include a credit to cash and are summarized, below:

(e) Purchasing and paying for equipment with cash:

Equipment	$XXX	
Cash		$XXX

(f) Paying rent expense with cash:

Rent expense	$XXX	
Cash		$XXX

(g) Paying salaries expense with cash:

Salaries expense	$XXX	
Cash		$XXX

(h) Paying utilities expense with cash

Utilities expense	$XXX	
Cash		$XXX

(i) Paying an **account payable** to a supplier for a credit purchase with cash

Accounts payable	$XXX	
Cash		$XXX

(j) Paying of a cash dividend with cash

Dividend	$XXX	
Cash		$XXX

(k) Prepaying a six month insurance policy with cash:

Prepaid insurance	$XXX	
Cash		$XXX

(l) Purchasing and paying for supplies inventory with cash:

Supplies	$XXX	
Cash		$XXX

Examples of Transactions – Non-Cash Revenues (Accrual Basis)
Examples of transactions requiring the recording of revenue, but that do not involve any cash receipts include (m) providing consulting services on account and (n) providing rental equipment on account. Both include a credit to a revenue account and a debit to an account receivable or accrual account, as follows:

(m) Providing consulting services on account:

Account receivable	$XXX	
Consulting revenue		$XXX

(n) Providing rental equipment on account:

Rent receivable	$XXX	
Rent revenue		$XXX

Examples of Transactions – Non-Cash Expenses (Accrual Basis)
Examples of transactions requiring the recording of expense, but that do not involve any cash disbursements include (o) purchasing equipment on account and (p) purchasing supplies inventory on account. Both include a debit to an asset account and a credit to an account payable or accrual account, as follows:

(o) Purchasing equipment on account:

Equipment	$XXX	
Account payable		$XXX

(p) Purchasing supplies inventory on account:

Supplies inventory	$XXX	
Account payable		$XXX

Appendix A

Debt Ratio

Risk assessment is an important process associated with the development and presentation of accounting and financial information. Recall that all assets are financed with either liabilities or equity:

Assets = Liabilities + Equity

A firm using a high degree, percentage or relative amount of debt to finance assets is said to be using a high degree or level of *financial leverage*. Higher financial leverage is associated with higher risk, since liabilities tend to involve regular payments interest or both interest and principal. Equity financing does not involve the payment of interest. Therefore, there is some level of risk that a firm might not be able to make these payments of interest or both interest and principal. One measure of the level of debt or risk associated with a firm's "capital structure" is the debt ratio, as follows:

Debt Ratio = Total Liabilities ÷ Total Assets

For example, assume a firm has $100 in total assets, $40 in total liabilities, and $60 in total equity. The debt ratio is 40 percent, as follows:

40% = $40 ÷ $100

Chapter 3[1]

Adjusting Journal Entries & Preparing Financial Statements

Learning Objectives

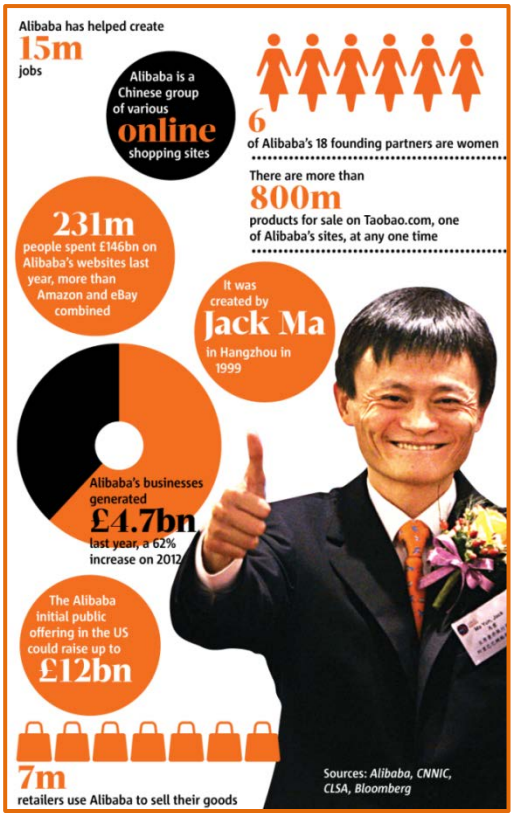
- Explain the importance of *periodic* reporting and the time period or periodicity assumption.
- Explain why accrual basis accounting is preferable, when compared to cash basis accounting.
- Provide several examples of accruals.
- Illustrate your understanding of the difference between cash basis and accrual basis accounting.
- Explain how accrual accounting assists in complying with the periodicity assumption and the matching principle.
- Give examples of the adjustments or adjusting journal entries used to achieve the periodic matching of revenues and expenses in the income statement and accruals in the balance sheet.
- List the five journals or original books of entry.
- List the 3 journals necessary for cash basis accounting.
- List the 5 journals necessary for accrual basis accounting.
- Provide an example of the types of journal entries likely to be recorded in the general journal.
- Prepare a balance sheet, statement of retained earnings, and income statement, after making adjusting journal entries to an unadjusted trial balance.
- Prepare closing journal entries and a post-closing trial balance.
- Illustrate your understanding of the mechanics involved when using reversing entries.
- Define the profit margin, current ratio, and when and how reversing journal entries are made and used.

[1] Acknowledgement: An earlier version of this chapter was provided to all accounting faculty on November 13, 2014, for review notes, comments, and recommendations for improvement. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

Quite a few students wanted some family photos included in the text. Okay…meet Kristian. Don't let the pleasant demeanor and white belt fool you. He's a terror and is probably up to no good. Kristian is one of the Cataldo grand critters. He does not have an accounting background, PhD, CPA, or any other credentials in accounting, and did not contribute to this text, but he does appear to enjoy posing for the camera, as he is quite photogenic.

Professor Cataldo and his wife, Holley, at the West Chester vs. Bloomsburg football game in 2011 (left). Their sheltie, Dutch, learns to swim in 2013 (right). Dutch did not enjoy the swimming lessons, but he does like to relax with a glass of red wine in a hot bath with some candles, after a tough day of barking, chasing the ball, and patrolling the back yard perimeter for squirrels and other critters (right). A Capricorn, Dutch was the runt of a litter of 8, and is a very spoiled, one and only child.

Alibaba Group Holding Limited (NYSE: BABA) controls 80 percent of China's online shopping. Market capitalization, in billions of U.S. dollars and after its late 2014 IPO, compared favorably to Apple ($615), Google ($397), Microsoft ($384), and is higher than Facebook ($204). Alibaba's market cap approximated $215 billion in October 2014.



Accounting Periods

For information to add value and improve decision-making, it must be provided in a timely fashion and at regular intervals. For this reason, accounting and financial information is prepared based on the time-period or periodicity assumption, which presumes that organizations can produce accounting and financial information at regular intervals – monthly, quarterly, semi-annually, or annually. While annual financial statements and reporting is common, many firms also prepare *interim* financial statements – monthly, quarterly, or semi-annually.

A firm might produce financial statements annually, but an organization can adopt a *fiscal* year end, which differs from the selection of a *calendar* year end (December 31st). For example, it is a common, industry practice for some retailers to use a 52-week reporting period (e.g., Gap, Walmart, and Target), for comparability, and a January 31st fiscal year end. These retailers rely on the holiday season for a significant portion of their revenues, and the end of January provides for a period after post-holiday season sales, when inventories are relatively low.

Cash Basis versus Accrual Basis Accounting

Cash basis accounting recognizes revenues when cash is received and expenses when cash is paid. Therefore, cash basis net income or net loss is the difference between cash receipts and cash disbursements. Cash basis accounting is not consistent with generally accepted accounting principles (GAAP). Cash basis accounting is too easy to manipulate. For example, if you want a higher net income (or a lower net loss) under cash basis accounting, you could simply delay paying bills to reduce cash disbursements or increase net income. Alternatively, you could prepay bills to increase cash disbursements and reduce net income.

The below illustrates just how easily a January cash basis income statement might be manipulated. Assume that the firm pays $2,000 per month for rent expense.

- If they simply pay their rent in January, on time, net income is $1,000.
- If they do not pay their January rent on time, perhaps in an effort to show a higher net income to qualify for a bank loan, their net income would increase to $3,000.

Example 1 Cash Basis	**$2,000 January Rent Paid on Time**	**$2,000 January Rent Not Paid on Time**	**Difference**
Revenues	$12,000	$12,000	$-0-
Expenses	$11,000	$9,000	$2,000
Net Income (Loss)	$1,000	$3,000	($2,000)

A firm might also attempt to use cash basis accounting to manipulate their cash basis income statement from a profit to a loss, perhaps for tax accounting purposes and to reduce their income taxes. Continue to assume that the firm pays $2,000 per month for rent expense.

- If they simply pay their rent in January, on time, net income is $1,000.
- If they pay their rent in January, on time, and also prepay their February rent in January, net loss is $1,000.

Example 2 Cash Basis	**$2,000 January Rent Paid on Time**	**$2,000 February Rent Prepaid in January & January Rent Paid on Time**	**Difference**
Revenues	$12,000	$12,000	$-0-
Expenses	11,000	13,000	(2,000)
Net Income (Loss)	$1,000	($1,000)	$2,000

Using the same, above fact patterns, where rent expense related cash disbursements are delayed or accelerated to generate a higher net income or net loss, respectively, the advantage of accrual accounting will be illustrated.

First, to illustrate the late payment of rent, but under accrual accounting:

Example 1 Cash Basis	**$2,000 January Rent Paid on Time**	**$2,000 January Rent Not Paid on Time**	**Difference**
Revenues	$12,000	$12,000	$-0-
Expenses	11,000	9,000	2,000
Net Income (Loss)	$1,000	$3,000	($2,000)
Example 1 Accrual Basis	**$2,000 January Rent Paid on Time**	**$2,000 January Rent Not Paid on Time**	**Difference**
Revenues	$12,000	$12,000	$-0-
Expenses	11,000	11,000	-0-
Net Income (Loss)	$1,000	$1,000	$-0-

Under cash basis accounting, no journal entry would be made to “accrue” the rent payable and “book” the rent expense. This is why expenses are $2,000 lower and net income is $2,000 higher in the above, cash basis example.

Under accrual accounting, the below journal entry would be made, at month end, to “accrue” the rent payable and “book” the rent expense:

Rent expense	**$2,000**	
Rent payable		**$2,000**

Second, to illustrate the early payment (or prepayment) of rent, but under accrual accounting:

Example 2 Cash Basis	**$2,000 January Rent Paid on Time**	**$2,000 February Rent Prepaid in January & January Rent Paid on Time**	**Difference**
Revenues	$12,000	$12,000	$-0-
Expenses	11,000	13,000	(2,000)
Net Income (Loss)	$1,000	($1,000)	$2,000
Example 2 Accrual Basis	**$2,000 January Rent Paid on Time**	**$2,000 February Rent Prepaid in January & January Rent Paid on Time**	**Difference**
Revenues	$12,000	$12,000	$-0-
Expenses	11,000	11,000	-0-
Net Income (Loss)	$1,000	$1,000	$-0-

Again, under cash basis accounting, no journal entry would be made to "accrue" the prepaid rent and "reclassify" the rent expense as an asset or prepayment. This is why expenses are $2,000 higher and net income is $2,000 lower in the above, cash basis example.

Under accrual accounting, the below journal entry would be made, at month end, to "reclassify" the February rent expense as prepaid rent, if expensed during January:

Prepaid Rent	**$2,000**	
Rent Expense		**$2,000**

Alternatively, the February prepayment might have been made, originally, as follows, which would eliminate the need for the above reclassification entry:

Prepaid rent	**$2,000**	
Cash		**$2,000**

The accrual method of accounting will produce the same results, whether rent payments are delayed or accelerated. This proper ***matching*** of revenues and expenses to the ***period*** when rent expense is incurred is not dependent on cash disbursement decisions. This is achieved through the use of accruals and accrual accounting. The matching principles and the periodicity assumption are fundamental to accrual accounting and GAAP.

The matching (or expense recognition) principle requires that revenues and the expenses incurred to generate these revenues be paired up and reported in the period in which both occurred. For example, the sale of an item for $10 should be matched to the $6 cost of the item. This permits the firm to more easily compute and conclude that a gross profit or gross margin of $4 ($10 less $6) was generated from the sale. Similarly, sales of $10,000 for the month and cost of goods sold of $6,000 per month, generating a gross margin of $4,000 for the month is best examined in an income statement that also provides rent, salary, utilities and other periodic expenses for the same month. If these revenues and expense were not matched for the month or period, the firm would not know if they were generating a profit or a loss and could not quickly and efficiently modify their operations or make informed decisions necessary to the survival of the firm.

The periodicity (or time-period) assumption requires that financial statements be prepared for easily understood time periods. A month, a quarter, a semi-annual or six month period, and a year are all examples of typical accounting periods. Most firms will prefer to have monthly financial statements, so that matters requiring management's attention and improved decision-making become apparent and strategic decisions can improve the operations of the firm.

The matching principle and periodicity assumption are linked and consistent with each other. Revenues are matching to the period when generated and expenses follow the revenues they generated.

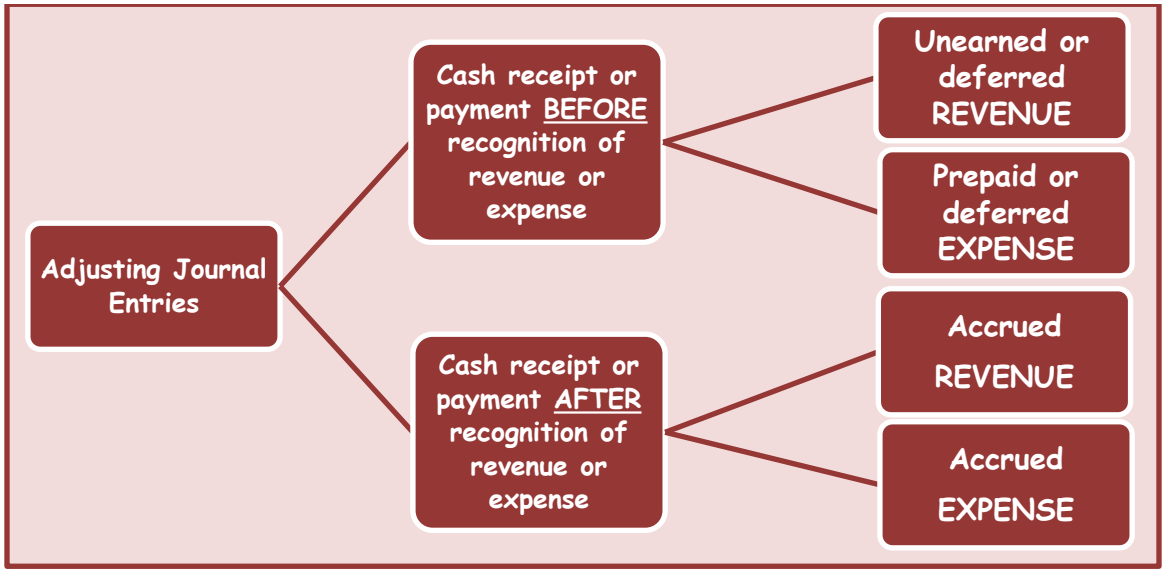
How Adjustments or Adjusting Journal Entries Achieve Periodic Matching
Adjustments or adjusting journal entries (AJEs) involve adjustment between balance sheet and related income statement accounts, focusing on the correct balance sheet account balance, which is more clearly determinable. It is easily determined, because the firm will have source documents providing end of month balances for these real accounts.

For example, (1) the bank reconciliation will provide the correct balance for cash, (2) a month-end listing of trade accounts receivable will provide the correct balance for accounts receivable, (3) a physical inventory will provide the correct balance for ending inventory, and so on. The generation and/or identification of the source documents for these balance sheet accounts with require adjusting journal entries to adjust the balance sheet account to its corrected balance. In the process, related income statement accounts will be involved and the income statement account balances will also be corrected. So, (1) the bank reconciliation might reveal some bank charges for

the month, previously not recorded on the firm's books, (2) a month-end accounting of trade accounts receivable might reveal an uncollectible receivable or bad debt and/or a sale that did not occur and should not have been booked, and (3) a physical inventory might reveal some damaged or spoiled inventory items that must be expensed and result in an inventory account balance reduction.

A Framework for Adjustments or Adjusting Journal Entries

Adjusting journal entries result from timing differences between the period when a revenue or expense is realized and the cash receipt or payment and can viewed in the following framework:



Unearned (or Deferred) Revenue

Unearned revenue or deferred revenue accounts are used to separately account for cash received in advance of providing goods or services. When earned, unearned revenue or deferred revenue, which are liability accounts, become revenue.

Assume that a firm receives $1,000 in advance, on January 1, for a product or service to be provided on or before January 31:

Cash	**$1,000**	
Unearned revenue		**$1,000**

or

Cash	**$1,000**	
Deferred revenue		**$1,000**

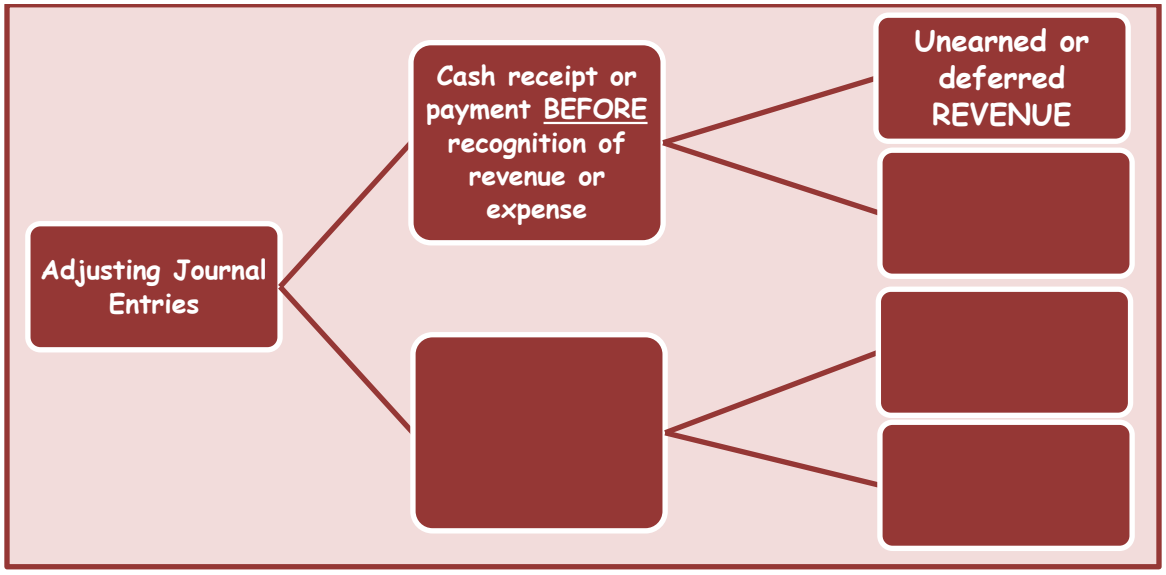
Assume that the product or service is 50 percent completed on or about January 31. The adjusting journal entry to ***match*** revenue to the ***period*** earned, recognizing $500 of the unearned revenue as revenue earned, follows:

Unearned revenue	**$500**	
Revenue		**$500**

Unearned Revenue	
	$1,000 Jan. 1
Jan. 31 $500	
	$500 Balance

Revenue	
	$500 Jan. 31
	$500 Balance

The above adjusting journal entry follows the path represented below. In this case, a cash receipt was received before the revenue was earned.



Prepaid (or Deferred) Expense – Prepaid Insurance

Prepaid expenses are assets until consumed. When consumed, prepaid expenses are expensed. Common examples used in financial accounting texts include prepaid insurance, but any expense can be prepaid.

Assume that the firm prepaid insurance for six months on January 1. On January 31, one-sixth of this insurance prepayment has expired or has been consumed. Both journal entries are presented, below:

Prepaid insurance	**$600**	
Cash		**$600**

Insurance expense	**$100**	
Prepaid insurance		**$100**

Prepaid insurance	
Jan. 1 $600	
	$100 Jan. 31
Balance $500	

Insurance expense	
Jan. 31 $100	
Balance $100	

Again, this transaction could have been accounted for differently. What if the entire six month insurance policy premium paid had been debited to the expense account on January 1? Again, the adjusting journal entry process would focus on the desired balance sheet account balance for prepaid insurance, where the appropriate ending balance is $500 on January 31. The adjusting journal entries and T-accounts follow:

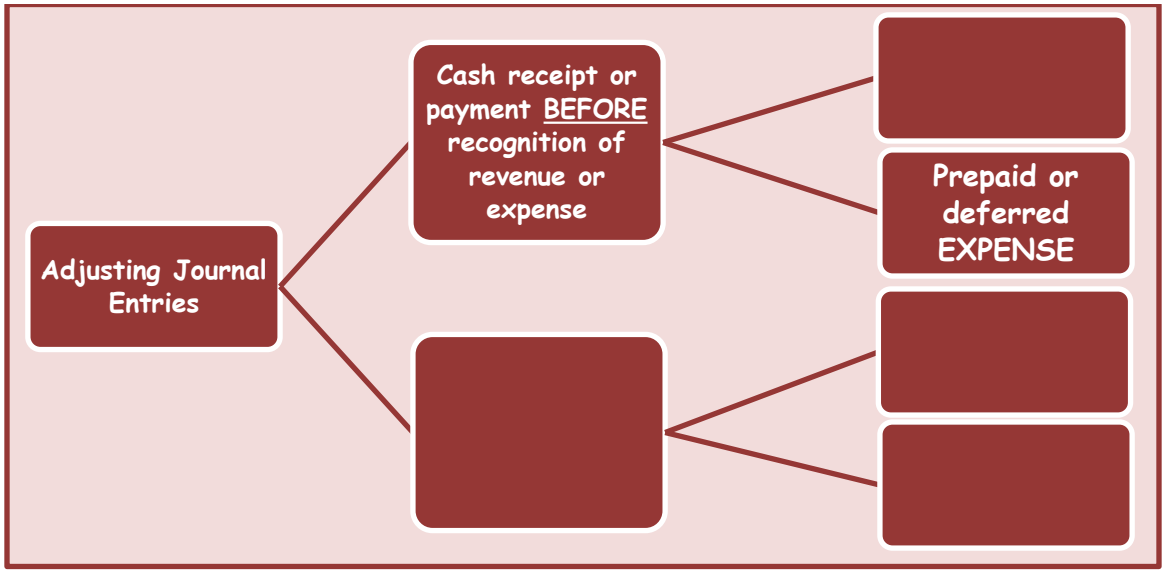
Insurance expense	**$600**	
Cash		**$600**

Prepaid insurance	**$500**	
Insurance expense		**$500**

Prepaid insurance	
Jan. 31 $500	
Balance $500	

Insurance expense	
Jan. 1 $600	
	$500 Jan. 31
Balance $100	

The above adjusting journal entry follows the path represented below. In this case, a cash disbursement was made before the expense was incurred.



Accrued Interest Revenue

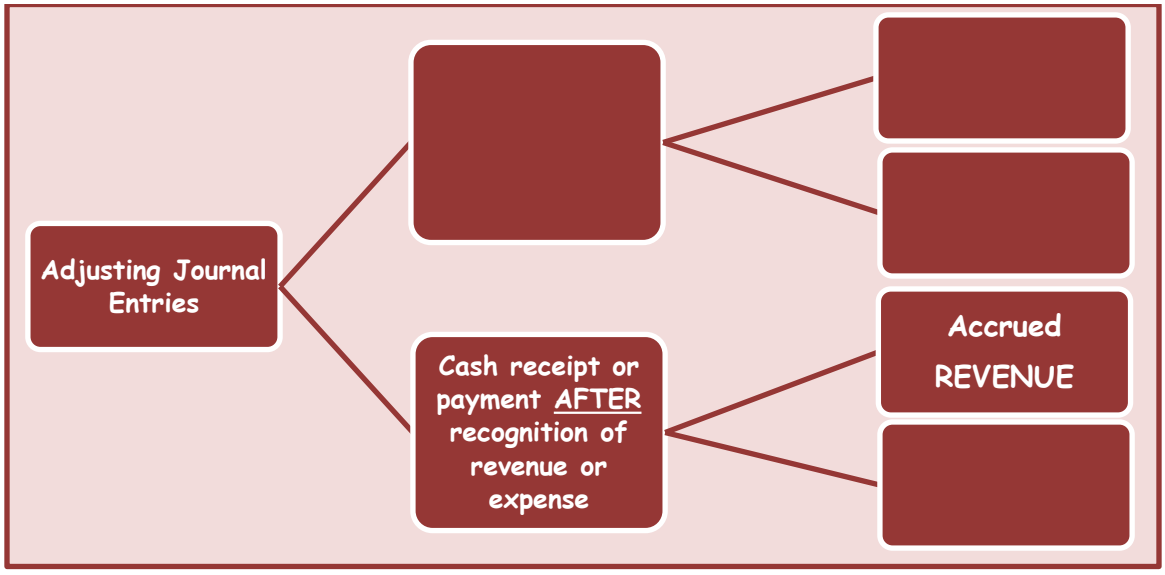
Interest revenue associated with receipts of interest or interest and principal payments that do not occur precisely at month-end will require an accrual journal entry to match the interest revenue to the appropriate period. For example, assume that a $100,000 note bearing interest at a rate of 12 percent per year (or 1 percent per month) requires a debtor to make mid-month payments on the 15th day of each month. This means that ½ of 1 percent accrues between the 16th day of the month and month-end, each and every month. Assuming a 30-day month (and 360 day year), ½ of 1 percent interest between Jan 16th and Jan. 31st amounts to $500 in interest revenue for the latter half of January. The journal entry to be made for the Jan. 31 month end follows:

Interest receivable	**$300**	
Interest revenue		**$300**

Interest receivable	
Jan. 31 $500	
Balance $500	

Interest revenue	
	$500 Jan. 31
	$500 Balance

The above adjusting journal entry follows the path represented below. In this case, revenue was accrued before the cash receipt.



Accrued Interest Expense

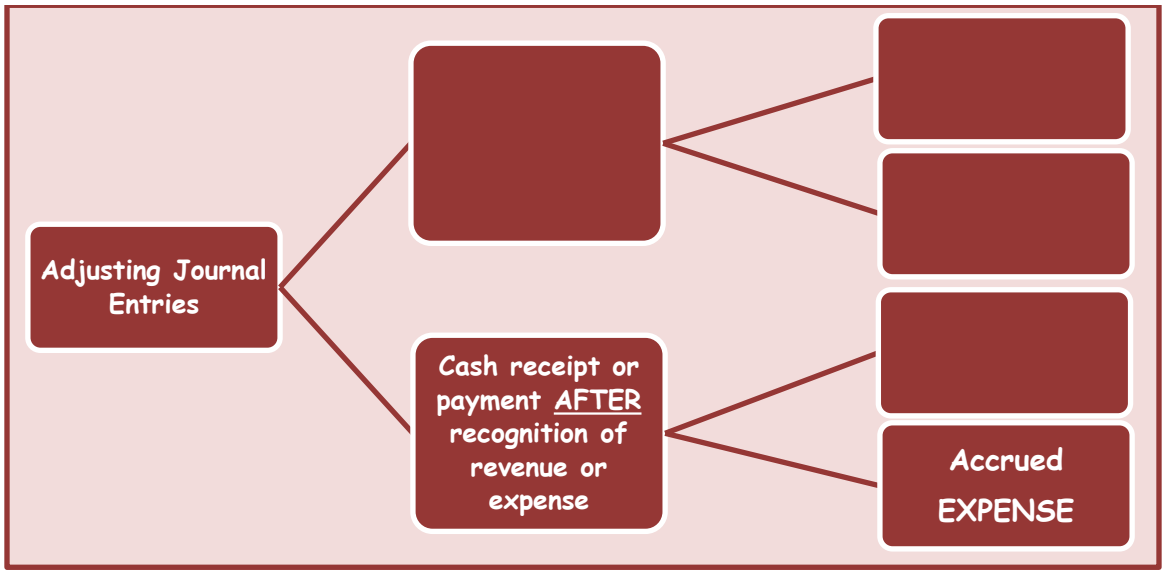
Interest expense associated with payments of interest or interest and principal payments that do not occur precisely at month-end will require an accrual journal entry to match the interest expense to the appropriate period. For example, assume that a $100,000 note bearing interest at a rate of 12 percent per year (or 1 percent per month) requires mid-month payments on the 15th day of each month. This means that ½ of 1 percent accrues between the 16th day of the month and month-end, each and every month. Assuming a 30-day month (and 360 day year), ½ of 1 percent interest between Jan 16th and Jan. 31st amounts to $500 in interest expense for the latter half of January. The journal entry to be made for the Jan. 31 month end follows:

Interest expense	**$300**	
Interest payable		**$300**

Interest payable	
	$500 Jan. 31
	$500 Balance

Interest expense	
Jan. 31 $500	
Balance $500	

The above adjusting journal entry follows the path represented below. In this case, expense was accrued before the cash disbursement.



Some additional examples requiring adjustments or adjusting journal entries follow, in no particular order.

Supplies (Inventory and) Expense
Supplies inventory is an asset until consumed. Once consumed, supplies inventory becomes supplies expense.

The following T-Account assumes that a firm purchased $1,000 of supplies inventory on Jan. 15. Supplies inventory could have been purchased on account or with cash. Both alternatives, in general journal entry form, are presented below:

Supplies inventory	**$1,000**	
Accounts payable		**$1,000**

or

Supplies inventory	**$1,000**	
Cash		**$1,000**

On Jan. 31, a physical count was conducted. Remaining supplies inventory was $500. Therefore, $500 in supplies inventory was consumed during the month of January, as follows:

Supplies expense	**$500**	
Supplies inventory		**$500**

Supplies inventory	
Jan. 15 $1,000	
	$500 Jan. 31
Balance $500	

Supplies expense	
Jan. 31 $500	
Balance $500	

The above could have been accounted for differently. What if supply purchased on Jan. 15 were debited to the expense account? Again, the adjusting journal entry process would focus on the desired balance sheet account, supplies inventory, where the appropriate ending balance is $500 on January 31. The adjusting journal entries and T-Accounts follow:

Supplies expense	**$1,000**	
Accounts payable		**$1,000**

or

Supplies expense	**$1,000**	
Cash		**$1,000**

Supplies inventory	**$500**	
Supplies expense		**$500**

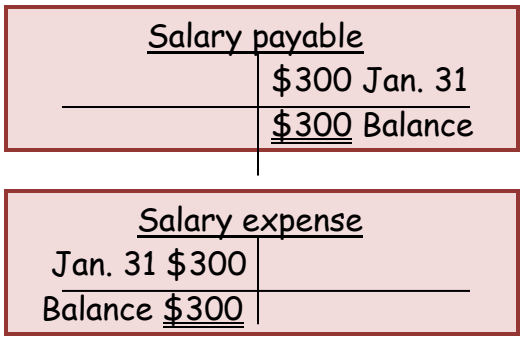
Supplies inventory	
Jan. 31 $500	
Balance $500	

Supplies expense	
Jan. 15 $1,000	
	$500 Jan. 31
Balance $500	

Accrued Salaries Expense

Salaries that have not been paid by the end of the month or accounting period will not be reflected as an expense on the period's income statement unless accrued. For example, assume that salaries approximating $100 per week day are paid weekly, on Fridays, and include salaries for the Friday day of payment. If month end occurs on a Wednesday, 3 days of salaries expense ($300) will have to be accrued for Monday, Tuesday and Wednesday. The journal entry to be made to accrue these 3 days of salary expense for the Jan. 31 month end follows:

Salary expense	**$300**	
Salary payable		**$300**



Depreciation Expense

Depreciation represents a process of allocating costs of long-lived assets to the periods benefitting from their use. It is discussed, in greater detail, in Chapter 8, but introduced in this chapter.

Long-lived assets are expected to benefit the firm for more than one period. Several terms are used to describe them, including property, plant and equipment (PP&E) and fixed assets (FA). They include building, machines and furniture. Depreciation expense represents a systematic and rational means of acknowledging economic and physical obsolescence, as these long-lived assets wear out. The cost of the asset is allocated over its expected useful life. Land, of course, does not wear out or have a limited life, so land is not depreciated. The straight-line method of computing depreciation expense is used in the below example.

Assume that a long-lived asset, an automobile, has a cost of $10,000, a useful life of 5 years, and an estimated salvage value of $1,000, as follows:

	Cost	**$10,000**
less:	**Salvage**	**1,000**
equals:	**Depreciable Base or Cost**	**$9,000**
divided by:	**5 Year Life**	**÷ 5**
equals:	**Annual Depreciation Expense**	**$1,800**
divided by:	**12 Months per Year**	**÷ 12**
equals:	**Monthly Depreciation Expense**	**$150**

Further assume that this asset is purchased and placed in service on January 1, and you must make the adjusting journal entry, at the end of January, to record the first month's depreciation expense. The adjusting journal entry to record depreciation expense for January follows:

Depreciation expense	**$150**	
Accumulated depreciation		**$150**

Depreciation expense	
Jan. 31 $150	
Balance $150	

Accumulated depreciation	
	$150 Jan. 31
	$150 Balance

Accumulated depreciation is a contra asset account. Contra is short for "contrary." *Contra account* balances are increased and decreased in a fashion "contrary" to that ordinary anticipated. Therefore, while asset accounts are increased with debits, contra asset accounts are increased with credits.

After recording the depreciation expense for January, the automobile, a fixed asset, has a net fixed asset value, book value or carrying value of $9,850, as follows:

Equipment	**$10,000**
Less Accumulated Depreciation	**150**
Total Fixed Assets	**$9,850**

The adjusting journal entry to record depreciation expense for February, and for every month until the automobile is fully depreciated, follows:

Depreciation expense	**$150**	
Accumulated depreciation		**$150**

After recording the depreciation expense for February, the second month of useful service, the automobile has a net fixed asset value, book value or carrying value of $9,700, as follows:

Equipment	**$10,000**
Less: Accumulated Depreciation	**300**
Total Fixed Assets	**$9,700**

The accumulated depreciation account "accumulates" all depreciation expense taken over the life of the long-lived asset. This is reflected in the below T-Account for accumulated depreciation, as follows:

Accumulated Depreciation	
	$150 Jan. 31
	$150 Feb 28
	$300 Balance

Failure to make the adjusting journal entries to record depreciation expense for the month of January and each month, until fully depreciated, would (1) understate expenses by $150 and (2) overstate net income by $150 in the monthly income statements. Because accumulated depreciation is a contra account and net income is reduced by expenses, failure to make the adjusting journal entries to record depreciation expense each month would also (3) overstate assets by $150 and (4) overstate equity by $150.

Financial Statement Preparation begins with the (1) income statement, where the net income or net loss measure can, then, be used to prepare the (2) statement of retained earnings, providing the ending retained earnings measure necessary to complete the firm's (3) balance sheet. The (4) statement of cash flows requires a beginning balance sheet, an ending balance sheet, and income statement for the period.

Closing Journal Entries can be made after the income statement is prepared. This is when all temporary or nominal revenue and expense accounts can be closed (or zeroed out) to the income summary account. Then, both income summary and dividend account balances can be closed to the retained earnings account. After revenue, expense, and dividend accounts have been closed (or zeroed out), the firm can proceed with the accounting for transactions occurring during the next period's operations.

Classified Balance Sheet
A more meaningful balance sheet is provided to stakeholders of users of financial statements if classifications of assets, liabilities and equity components are provided. Assets and liabilities, and even equity items, are ordered in terms of liquidity.

The Balance Sheet & Order of Liquidity – Assets, Liabilities & Owners' Equity
Recall that the basic accounting equation is assets equal liabilities plus owners' equity:

ASSETS = LIABILITIES + OWNERS' EQUITY

Assets are listed in order of liquidity, with the most liquid asset, cash, listed first. Liabilities are also listed in order of liquidity, with the liability likely to be paid in cash, first, listed first. It is for this reason that the first liability listed, typically, is accounts payable. Owners' equity accounts are also listed in (reverse) order of liquidity, but with respect to the potential for issuance or cash distribution to shareholders. The below is presented to illustrate:

Assets	=	Liabilities	+	Owners' Equity
Current Assets		Current Liabilities		Preferred Stock
Non-Current Assets		Non-Current Liabilities		Common Stock
				Retained Earnings

A, L & OE ARE ORGANIZED IN ORDER OF LIQUIDITY

Assets	=	Liabilities	+	Owners' Equity
↓		↓		↑

Classified balance sheet presentation of assets and liabilities, in order of liquidity, will be apparent as explained in this chapter. The reverse liquidity presentation in the owners' equity section of the balance sheet will not be apparent in this chapter, but will make more sense after you have read and studied chapter 11, toward the end of this introductory course.

Typical classifications of assets, liabilities and equity items follow:

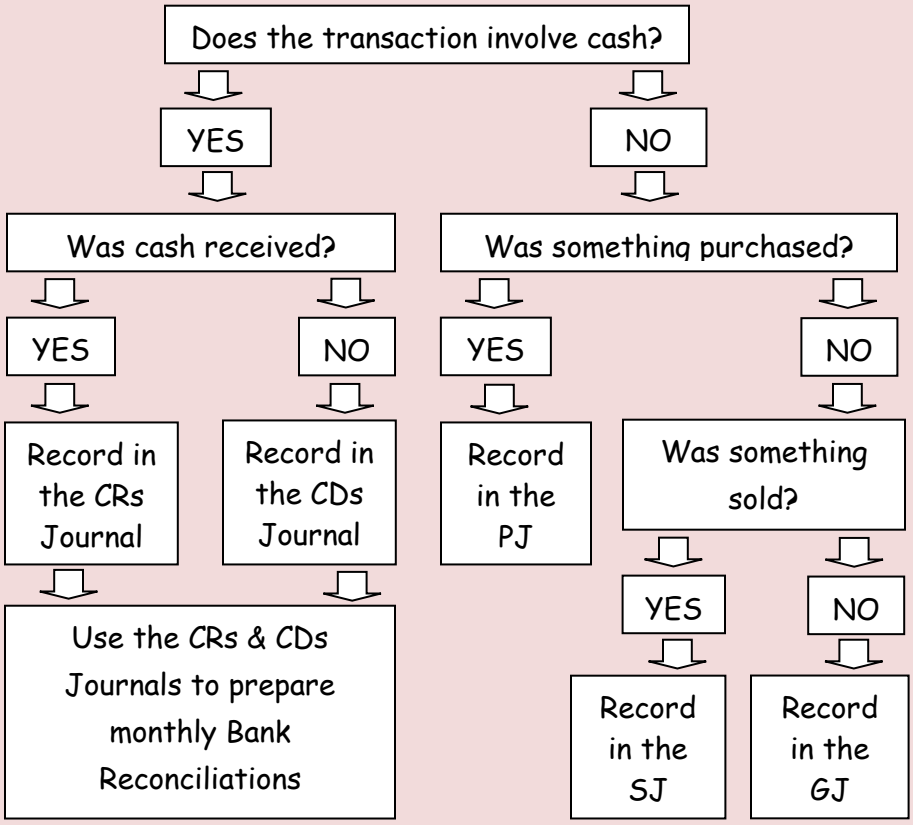
- Current assets (also referred to as short-term)
- Non-current assets (also referred to as long-term and including investments)
- Plant assets (also referred to as fixed assets or property, plant and equipment)
- Intangible assets
- Current liabilities (also referred to as short-term)
- Non-current liabilities (also referred to as long-term)
- Equity (sub-classifications are explained, in detail, in Chapter 11)

Journals Used for Cash Basis and Accrual Basis Accounting

All journal entries in accounting texts use the "general journal" format to illustrate which accounts to debit and which accounts to credit. In fact, the general journal is only used to summarize and record transactions that cannot more efficiently be recorded and summarized in the other 4 original books of entry.

The original books of entry are the (1) cash receipts journal, (2) the cash disbursements journal, (3) the sales journal, (4) the purchases journal, and (5) the general journal. The flowchart that follows is designed to assist you in your understanding of these journals or original books of entry. While this text will continue to illustrate the accounts debited and credited and the mechanics of accounting using the general journal form, the below should help you come to understand why using a general journal to record all transactions would be inefficient.

Summary Flowchart of Journals used for CASH and ACCRUAL Basis



Cash Basis System of Accounting:

- Cash Receipts (CRs) Journal
- Cash Disbursements (CDs) Journal
- General Journal (GJ)

Accrual Basis System of Accounting: ADD the following Journals

- Sales Journal (SJ) to record Accounts Receivable (A/R) Accruals
- Purchases Journal (PJ) to record Accounts Payable (A/P) Accruals

Preparing Financial Statements – A Single Fact Pattern

You have been asked to assist a new firm or start up with their financial statements from their first month of operations. They opened a separate checking account for the firm and did a very good job of preparing a cash receipts and cash disbursements journal, but want accrual basis financial statements and could not quite figure out how to develop sales, purchases and general journals or related adjusting journal entries to complete the process. You used their cash receipts and cash disbursements journals to determine their cash balance, at month end, and the following unadjusted trial balance:

Unadjusted Trial Balance			
Acct. No.	Account Title	DR	CR
100	Cash	$4,000	
110	Accounts receivable	$0	
120	Supplies inventory	$10,000	
130	Prepaid expense	$3,000	
150	Equipment	$25,000	
155	Accumulated depreciation - Equipment		$0
210	Accounts payable		$0
220	Salaries payable		$0
230	Unearned revenue		$4,500
300	Common stock		$35,000
310	Retained earnings		$0
320	Dividends	$0	
410	Revenues		$6,000
555	Depreciation expense	$0	
560	Salaries expense	$2,000	
565	Insurance expense	$0	
570	Rent expense	$1,000	
575	Supplies expense	$0	
580	Utilities expense	$500	
	Totals	$45,500	$45,500

You roughed out a trial balance, complete with account numbers, above.

Note that there is no balance in the accounts receivable and accounts payable accounts. Recall that the firm did not know how to develop these measures, usually associated with the ongoing maintenance of a sales and purchases journal. You ask the owner if any credit sales or credit purchases were made during the month, and the following additional information was provided:

a. Sales made but cash not yet collected at $1,000.
b. Purchases of supplies made but cash not yet paid at $500.

You make the following journal entries to "book" the unrecorded credit sales and credit purchases, as follows:

Accounts receivable	**$1,000**	
Revenue		**$1,000**

Supplies inventory	**$500**	
Accounts payable		**$500**

A partially adjusted trial balance, after the first 2 adjusting journal entries, is provided, below:

	Partially Adjusted Trial Balance									
Acct. No.	Account Title	DR	CR		DR		CR	DR	CR
100	Cash	$4,000						$4,000	
110	Accounts receivable	$0		a	$1,000			$1,000	
120	Supplies inventory	$10,000		b	$500			$10,500	
130	Prepaid expense	$3,000						$3,000	
150	Equipment	$25,000						$25,000	
155	Accumulated depreciation - Equipment		$0						$0
210	Accounts payable		$0			b	$500		$500
220	Salaries payable		$0						$0
230	Unearned revenue		$4,500						$4,500
300	Common stock		$35,000						$35,000
310	Retained earnings		$0						$0
320	Dividends	$0						$0	
410	Revenue		$6,000			a	$1,000		$7,000
555	Depreciation expense	$0						$0	
560	Salaries expense	$2,000						$2,000	
565	Insurance expense	$0						$0	
570	Rent expense	$1,000						$1,000	
575	Supplies expense	$0						$0	
580	Utilities expense	$500						$500	
	Totals	$45,500	$45,500		$1,500		$1,500	$47,000	$47,000

You ask the firm if they took a month-end inventory of supplies. They did. They provide the summary, with a balance of $8,500. They also provide an invoice supporting the prepaid expense balance of $3,000. The invoice indicates that the entire balance was for insurance for a 6 month period, or $500 per month. Therefore, you have sufficient information to make adjusting journal entries relating to both supplies inventory and prepaid expenses, as follows:

c. Force or adjust ending supplies inventory from $10,500 to $8,500, based on a month-end accounting and physical count of supplies inventory.
d. Expense 1 month of the 6 month policy, which has been consumed or expired, while 5 months or $2,500 of the $3,000 cost remains unexpired or unconsumed.

Supplies expense	**$2,000**	
Supplies inventory		**$2,000**

Insurance expense	**$500**	
Prepaid expenses		**$500**

A partially adjusted trial balance, after the first 4 adjusting journal entries, is provided, below:

Partially Adjusted Trial Balance

Acct. No.	Account Title	DR	CR		DR		CR	DR	CR
100	Cash	$4,000						$4,000	
110	Accounts receivable	$0		a	$1,000			$1,000	
120	Supplies inventory	$10,000		b	$500	c	$2,000	$8,500	
130	Prepaid expense	$3,000				d	$500	$2,500	
150	Equipment	$25,000						$25,000	
155	Accumulated depreciation - Equipment		$0						$0
210	Accounts payable		$0			b	$500		$500
220	Salaries payable		$0						$0
230	Unearned revenue		$4,500						$4,500
300	Common stock		$35,000						$35,000
310	Retained earnings		$0						$0
320	Dividends	$0						$0	
410	Revenue		$6,000			a	$1,000		$7,000
555	Depreciation expense	$0						$0	
560	Salaries expense	$2,000						$2,000	
565	Insurance expense	$0		d	$500			$500	
570	Rent expense	$1,000						$1,000	
575	Supplies expense	$0		c	$2,000			$2,000	
580	Utilities expense	$500						$500	
	Totals	$45,500	$45,500		$4,000		$4,000	$47,000	$47,000

You believe that the cash balance, accounts receivable balance, supplies inventory balance, and prepaid expense balance have all been adjusted to the correct amount for month end preparation of the firm's financial statements. The next item is equipment. You ask the firm about the equipment purchased for $25,000 during the first month of operations. They provide invoices for furniture and fixtures, totaling $25,000, and tell you these items are expected to last 10 years and should be worth about $2,500 at the end of this period. You compute an estimate of the consumption of these long-lived assets at $188 per month, rounded to the nearest dollar, as follows:

	Cost	$25,000
less:	Salvage	($2,500)
equals:	Amount to expense	$22,500
divided by:	10 years	÷ 10
equals:	Annual expense	$2,250
divided by:	12 months	÷ 12
equals:	Monthly expense	$188

Depreciation expense and the alternative techniques used to reflect economic and functional obsolescence for long-lived assets is covered in great detail in Chapter 8 of this text. For now, this "straight-line" method will be used.

e. Depreciation expense and accumulated depreciation will be recorded at $188 for the first month on operations, as follows:

Depreciation expense	**$188**	
Accumulated depreciation		**$188**

A partially adjusted trial balance, after this 5th adjusting journal entry, is provided, below:

	Partially Adjusted Trial Balance								
Acct. No.	Account Title	DR	CR		DR		CR	DR	CR
100	Cash	$4,000						$4,000	
110	Accounts receivable	$0		a	$1,000			$1,000	
120	Supplies inventory	$10,000		b	$500	c	$2,000	$8,500	
130	Prepaid expense	$3,000				d	$500	$2,500	
150	Equipment	$25,000						$25,000	
155	Accumulated depreciation - Equipment		$0			e	$188		$188
210	Accounts payable		$0			b	$500		$500
220	Salaries payable		$0						$0
230	Unearned revenue		$4,500						$4,500
300	Common stock		$35,000						$35,000
310	Retained earnings		$0						$0
320	Dividends	$0						$0	
410	Revenue		$6,000			a	$1,000		$7,000
555	Depreciation expense	$0		e	$188			$188	
560	Salaries expense	$2,000						$2,000	
565	Insurance expense	$0		d	$500			$500	
570	Rent expense	$1,000						$1,000	
575	Supplies expense	$0		c	$2,000			$2,000	
580	Utilities expense	$500						$500	
	Totals	$45,500	$45,500		$4,188		$4,188	$47,188	$47,188

The next item requiring a possible adjustment is salaries payable. You ask the firm if the last payday occurred on the last day of the month. It did not. The firm estimates that $200 in salaries were payable on the last day of the month.

f. Salaries payable and additional salaries expense, in the amount of $200, are recorded for month end, as follows:

Salaries expense	**$200**	
Salaries payable		**$200**

A partially adjusted trial balance, after this 6th adjusting journal entry, is provided, below:

Partially Adjusted Trial Balance											
Acct. No.	Account Title	DR	CR		DR		CR	DR	CR
100	Cash	$4,000						$4,000	
110	Accounts receivable	$0		a	$1,000			$1,000	
120	Supplies inventory	$10,000		b	$500	c	$2,000	$8,500	
130	Prepaid expense	$3,000				d	$500	$2,500	
150	Equipment	$25,000						$25,000	
155	Accumulated depreciation - Equipment		$0			e	$188		$188
210	Accounts payable		$0			b	$500		$500
220	Salaries payable		$0			f	$200		$200
230	Unearned revenue		$4,500						$4,500
300	Common stock		$35,000						$35,000
310	Retained earnings		$0						$0
320	Dividends	$0						$0	
410	Revenue		$6,000			a	$1,000		$7,000
555	Depreciation expense	$0		e	$188			$188	
560	Salaries expense	$2,000		f	$200			$2,200	
565	Insurance expense	$0		d	$500			$500	
570	Rent expense	$1,000						$1,000	
575	Supplies expense	$0		c	$2,000			$2,000	
580	Utilities expense	$500						$500	
	Totals	$45,500	$45,500		$4,388		$4,388	$47,388	$47,388

Your inquiries regarding the$4,500 in unearned revenues lead you to conclude that 90 percent of these revenues were earned prior to month end, as follows:

g. The following journal entry records the 90 percent of revenues earned ($4,050), while 10 percent of the balance ($450) remains in the unearned revenue or liability account, as follows:

Unearned revenue	**$4,050**	
Revenue		**$4,050**

After this last adjusting journal entry, you ask management if any dividends were paid or decided upon during this first month of operations. They decided not to accrue or pay dividends during this first month of operations.

If the firm paid dividends during the period, the credit to cash would have been recorded and summarized in the cash disbursements journal. The journal entry would be as follows:

Dividends	**$XXX**	
Cash		**$XXX**

If the firm accrued, but did not pay dividends during the period, an additional account would be added to the chart of accounts for a dividend payable, and the journal entry would be as follows:

Dividends	**$XXX**	
Dividends payable		**$XXX**

Dividends were not paid, so the adjusted trial balance after this 7th and final adjusting journal entry follows:

	Adjusted Trial Balance									
Acct. No.	Account Title	DR	CR		DR		CR	DR	CR
100	Cash	$4,000						$4,000	
110	Accounts receivable	$0		a	$1,000			$1,000	
120	Supplies inventory	$10,000		b	$500	c	$2,000	$8,500	
130	Prepaid expense	$3,000				d	$500	$2,500	
150	Equipment	$25,000						$25,000	
155	Accumulated depreciation - Equipment		$0			e	$188		$188
210	Accounts payable		$0			b	$500		$500
220	Salaries payable		$0			f	$200		$200
230	Unearned revenue		$4,500	g	$4,050				$450
300	Common stock		$35,000						$35,000
310	Retained earnings		$0						$0
320	Dividends	$0						$0	
410	Revenue		$6,000			a	$1,000		$11,050
						g	$4,050		
555	Depreciation expense	$0		e	$188			$188	
560	Salaries expense	$2,000		f	$200			$2,200	
565	Insurance expense	$0		d	$500			$500	
570	Rent expense	$1,000						$1,000	
575	Supplies expense	$0		c	$2,000			$2,000	
580	Utilities expense	$500						$500	
	Totals	$45,500	$45,500		$8,438		$8,438	$47,388	$47,388

Notes: _____

Generating the Balance Sheet from the Adjusted Trial Balance

The balance sheet is developed from the top portion of the adjusted trial balance. Note that the chart of accounts began with assets (100s), followed by liabilities (200s), and the last classification of the balance sheet, equity accounts (300s), are all organized with this in mind.

Below, the adjusted trial balance and the balance sheet, without any heading, are provided, side by side, for you to compare their development.

Account Title	DR	CR
Cash	$4,000	
Accounts receivable	$1,000	
Supplies inventory	$8,500	
Prepaid expense	$2,500	
Equipment	$25,000	
A.D. - Equipment		$188
Accounts payable		$500
Salaries payable		$200
Unearned revenue		$450
Common stock		$35,000
Retained earnings		$0
Dividends	$0	
Revenue		$11,050
Depreciation expense	$188	
Salaries expense	$2,200	
Insurance expense	$500	
Rent expense	$1,000	
Supplies expense	$2,000	
Utilities expense	$500	
Totals	$47,388	$47,388

Assets		
Cash		$4,000
Accounts receivable		$1,000
Supplies inventory		$8,500
Prepaid expense		$2,500
Equipment	$25,000	
A.D. - Equipment	$188	$24,812
Total Assets		$40,812
Liabilities		
Accounts payable		$500
Salaries payable		$200
Unearned revenue		$450
Total Liabilities		$1,150
Equity		
Common stock		$35,000
Retained earnings		$4,662
Total Liabilities and Equity		$40,812

Because the statement of retained earnings has not yet been developed, the balance in the above balance sheet is a plug until verified. This amount can easily be determined, since debits equal credits and assets equal liabilities and equity.

Notes: _____

Generating the Income Statement from the Adjusted Trial Balance

The income statement is developed from the bottom portion of the adjusted trial balance. Note, again, that the chart of accounts proceeds, sequentially, from assets, liabilities, and equity to revenues (400s) and expenses (500s). Again, accounts in the chart of accounts are organized in a fashion to facilitate the preparation of the financial statements.

Account Title	DR	CR
Cash	$4,000	
Accounts receivable	$1,000	
Supplies inventory	$8,500	
Prepaid expense	$2,500	
Equipment	$25,000	
A.D. - Equipment		$188
Accounts payable		$500
Salaries payable		$200
Unearned revenue		$450
Common stock		$35,000
Retained earnings		$0
Dividends	$0	
Revenue		$11,050
Depreciation expense	$188	
Salaries expense	$2,200	
Insurance expense	$500	
Rent expense	$1,000	
Supplies expense	$2,000	
Utilities expense	$500	
Totals	$47,388	$47,388

Revenue		$11,050
Expenses		
Depreciation expense	$188	
Salaries expense	$2,200	
Insurance expense	$500	
Rent expense	$1,000	
Supplies expense	$2,000	
Utilities expense	$500	
Total expenses		$6,388
Net income		$4,662

Because no dividends were paid during the period, note that net income is precisely equal to the balance of retained earnings at the end of the period, at $4,662.

Notes: _____

Generating the Statement of Retained Earnings from the Adjusted Trial Balance
The statement of retained earnings provides a beginning of period to end of period reconciliation of this equity accounts. Retained earnings are increased during a period for net income, decreased during a period for net loss, and decreased for any earnings paid to shareholders for dividends. The statement of retained earnings links the net income from the income statement and for the period to the ending retained earnings and equity balance in the balance sheet prepared for the end of the period or ending point in time.

Account Title	DR	CR
Cash	$4,000	
Accounts receivable	$1,000	
Supplies inventory	$8,500	
Prepaid expense	$2,500	
Equipment	$25,000	
A.D. - Equipment		$188
Accounts payable		$500
Salaries payable		$200
Unearned revenue		$450
Common stock		$35,000
Retained earnings		$0
Dividends	$0	
Revenue		$11,050
Depreciation expense	$188	
Salaries expense	$2,200	
Insurance expense	$500	
Rent expense	$1,000	
Supplies expense	$2,000	
Utilities expense	$500	
Totals	$47,388	$47,388

Retained earnings, beginning	$0
Add: Net income	$4,662
	$4,662
Less: Dividends	$0
Retained earnings, ending	$4,662

Notes: _____

Closing Entries and the Post-Closing Trial Balance

Closing entries are adjusting journal entries used to close temporary or nominal income statement and dividend accounts to the income summary, preparing the revenue and expense accounts with zero balances to begin the next accounting period. Illustrations of these closing entries follow

Revenue	**$11,050**	
Income summary		**$11,050**

Income summary	**$6,388**	
Depreciation expense		**$188**
Salaries expense		**$2,200**
Insurance expense		**$500**
Rent expense		**$1,000**
Supplies expense		**$2,000**
Utilities expense		**$500**

Notes: _____

After closing all revenue and expense accounts to the income summary, the net balance (income or loss) in the income summary account is closed out to the retained earnings account, as follows:

Income summary	**$4,662**	
Retained earnings		**$4,662**

Notes: _____

The post-closing trial balance is provided, below. Note that all income statement accounts have zero balances, and, therefore, have been prepared to record transactions relevant to the "next" accounting period (i.e., periodicity assumption and matching principle).

Acct. No.	Account Title	DR	CR
100	Cash	$4,000	
110	Accounts receivable	$1,000	
120	Supplies inventory	$8,500	
130	Prepaid expense	$2,500	
150	Equipment	$25,000	
155	A.D. - Equipment		$188
210	Accounts payable		$500
220	Salaries payable		$200
230	Unearned revenue		$450
300	Common stock		$35,000
310	Retained earnings		$4,662
320	Dividends	$-0-	
410	Revenue		$-0-
555	Depreciation expense	$-0-	
560	Salaries expense	$-0-	
565	Insurance expense	$-0-	
570	Rent expense	$-0-	
575	Supplies expense	$-0-	
580	Utilities expense	$-0-	
	Totals	$41,000	$41,000

Notes: _____

The Adjusted Trial Balance (TB), Balance Sheet, Income Statement, and Post-Closing Trail Balance Worksheet

The adjusted trial balance is provided, below. The balance sheet and income statement are prepared from this worksheet. Note the dark shading for the balance sheet and income statement measures. Since all temporary or nominal accounts are closed to retained earnings, after the balance sheet and income statement are prepared, note that there are no measures for the income statement accounts in the post-closing TB columns.

Acct.		Adjusted TB		Balance Sheet		Income Statement		Post-Closing TB	
No.	Account Title	DR	CR	DR	CR	DR	CR	DR	CR
100	Cash	$4,000		$4,000				$4,000	
110	Accounts receivable	$1,000		$1,000				$1,000	
120	Supplies inventory	$8,500		$8,500				$8,500	
130	Prepaid expense	$2,500		$2,500				$2,500	
150	Equipment	$25,000		$25,000				$25,000	
155	A.D. - Equipment		$188		$188				$188
210	Accounts payable		$500		$500				$500
220	Salaries payable		$200		$200				$200
230	Unearned revenue		$450		$450				$450
300	Common stock		$35,000		$35,000				$35,000
310	Retained earnings		$0		$0				$4,662
320	Dividends	$0							
410	Revenue		$11,050				$11,050		
555	Depreciation expense	$188				$188			
560	Salaries expense	$2,200				$2,200			
565	Insurance expense	$500				$500			
570	Rent expense	$1,000				$1,000			
575	Supplies expense	$2,000				$2,000			
580	Utilities expense	$500				$500			
	Subtotals	$47,388	$47,388	$41,000	$36,338	$6,388	$11,050	$41,000	$41,000
	Income summary				$4,662	$4,662			
	Totals			$41,000	$41,000	$11,050	$11,050		

Notes: _____

Appendix A

Profit Margin

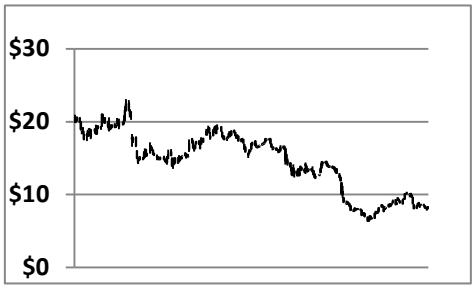
Profit margin or *return on sales* provides a useful measure of a firm's operating results. Recall, from Chapter 1, that operations are one of the three basic business activities:

(1) **Operating** – involving the use of resources for short-term or current operations.
(2) **Investing** – involving the use of long-term or noncurrent assets to achieve both short-term and long-term (or current and noncurrent) operating goals and objectives.
(3) **Financing** – involving the use debt (and financial leverage) and equity to achieve both short-term and long-term (or current and noncurrent) goals and objectives.

The profit margin represents the percent of profit for each dollar of sales, as follows:

Profit Margin = Net Income ÷ Net Sales

JCPenney (NYSE: JCP) saw its stock price decline from about $20 per share to about $8 per share during 2013 (lower left). With a 52-week high at $11.30 and a 52-week low at $5.22 per share, the firm has a difficult road ahead to restore shareholder confidence, but continues to trade in the $8 per share range (see 5 year chart below).



The firm's last profitable quarter was February 1, 2014 (see below, from Yahoo!Finance), with a profit margin of less than 1%, as follows:

0.93% = $35,000 ÷ $3,782,000

Period Ending	Nov 1, 2014	Aug 2, 2014	May 3, 2014	Feb 1, 2014
Total Revenue	**2,764,000**	**2,799,000**	**2,801,000**	**3,782,000**
Cost of Revenue	1,751,000	1,791,000	1,875,000	2,708,000
Gross Profit	**1,013,000**	**1,008,000**	**926,000**	**1,074,000**
Operating Expenses				
Research Development	-	-	-	-
Selling General and Administrative	899,000	913,000	993,000	1,001,000
Non Recurring	12,000	5,000	22,000	50,000
Others	156,000	160,000	158,000	161,000
Total Operating Expenses	-	-	-	-
Operating Income or Loss	**(54,000)**	**(70,000)**	**(247,000)**	**(138,000)**
Income from Continuing Operations				
Total Other Income/Expenses Net	(34,000)	-	-	-
Earnings Before Interest And Taxes	(88,000)	(70,000)	(247,000)	(138,000)
Interest Expense	103,000	106,000	97,000	97,000
Income Before Tax	(191,000)	(176,000)	(344,000)	(235,000)
Income Tax Expense	(3,000)	(4,000)	8,000	(270,000)
Minority Interest	-	-	-	-
Net Income From Continuing Ops	(222,000)	(172,000)	(352,000)	35,000
Non-recurring Events				
Discontinued Operations	-	-	-	-
Extraordinary Items	-	-	-	-
Effect Of Accounting Changes	-	-	-	-
Other Items	-	-	-	-
Net Income	**(188,000)**	**(172,000)**	**(352,000)**	**35,000**
Preferred Stock And Other Adjustments	-	-	-	-
Net Income Applicable To Common Shares	**(188,000)**	**(172,000)**	**(352,000)**	**35,000**

Appendix B

Current Ratio

A firm's ability to pay near-term debts or liabilities is quickly and easily assessed by computing their *current ratio*, as follows:

Current Ratio = Current Assets ÷ Current Liabilities

Suppliers and creditors would use this ratio to formulate a decision with respect to the firm's credit worthiness. They would compute and use this measure to assist them in deciding whether they might decide to extend credit to the firm.

JCPenney (NYSE: JCP) was not in any immediate threat of insolvency at the end of 2013, as the below, from Yahoo!Finance, suggests a current ratio for the most recent quarter (MRQ) at 1.77, however, cash at $684 million and debt at $5.43 billion might be of long-term concern to some:

Balance Sheet	
Total Cash (mrq):	684.00M
Total Cash Per Share (mrq):	2.24
Total Debt (mrq):	5.43B
Total Debt/Equity (mrq):	223.33
Current Ratio (mrq):	1.77
Book Value Per Share (mrq):	7.97

Note that the firm has total cash per share at $2.24 and a book value of $7.97 per share. The stock is trading at only a tiny bit above book value, as of February 13, 2015, which is not favorable.

Appendix C

Reversing Journal Entries

An additional adjusting journal entry (AJE) might be preferred by some, presumably, to simplify the firm's recordkeeping process. The additional journal entry is referred to as reversing journal entry (RJE).

Most accounting texts, and accountants, do not use reversing journal entries. RJEs are used for post-closing accruals.

The accrual of salaries payable and salaries expense prior to year-end closing and before and after year-end financial statement preparation is used to illustrate the alternatives.

Accounting <u>without</u> reversing journal entries
Assume that ABC Corporation has employee salaries that approximate $500 per day, 5 days per week ($2,500 per week). Paydays are weekly and on Fridays, in this case, the last payday (Friday) before year-end is December 28th. Year-end occurs on a Monday, in this case, the day before New Years' day is a working day and on December 31st. Therefore, the following AJE must be made to "book the accrual" on December 31st, the day before New Years' Day:

Salaries expense	**$500**	
Salaries payable		**$500**

Salaries Expense		Salaries Payable	
Dec. 31 $500			$500 Dec. 31
	Dec. 31 $500		
-0-	-0-		

While all temporary or nominal (revenue and expense) accounts were closed out to the income summary account on December 31st, immediately after all AJEs. The debit and credit mechanics of the impact on the salaries expense account is provided, as follows:

Income summary	**$500**	
Salaries expense		**$500**

Accounting <u>with</u> reversing journal entries
Assume the same fact pattern, but ABC Corporation decides to use reversing entries, post-closing, and after the financial statements are prepared.

The same journal entry is made on December 31st, as follows:

Salaries expense	**$500**	
Salaries payable		**$500**

Salary payable	
	$500 Dec. 31
$500 Balance	

Salary expense	
Dec. 31 $500	
Balance $-0-	$-0- Balance

Again, all temporary or nominal (revenue and expense) accounts were closed out to the income summary account on December 31st, immediately after all AJEs. The debit and credit mechanics of the impact on the salaries expense account is provided, as follows:

Income summary	**$500**	
Salaries expense		**$500**

The additional step is the RJE, where the accrual balance, a credit balance in salaries payable is eliminated on Jan. 1, as follows:

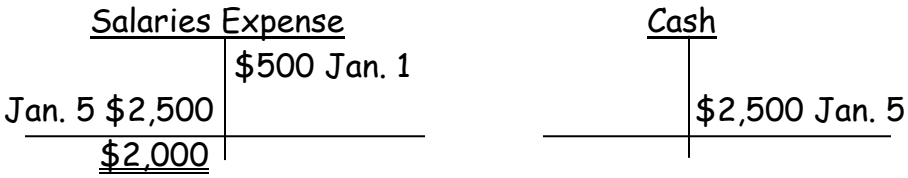
Salaries payable	**$500**	
Salaries expense		**$500**

Salary payable	
	$500 Dec. 31
Jan. 1 $500	
Balance $-0-	$-0- Balance

Salary expense	
	$500 Jan. 1
	$500 Balance

Note that the RJE establishes a beginning credit balance in an expense account, salaries expense. This is one of the arguments against using RJEs. However, when payroll is, again, posted and paid on the following Friday (one week from December 28 or January 5 of the next year), the adjusted balance in the salaries expense account is automatically maintained at the correct, month-do-date balance ($2,000). This is one of the arguments for using RJEs, as follows:

Salaries expense	**$2,500**	
Salaries payable		**$2,500**



Date		Amount	January Salary Expense	DR Salary Expense	CR Cash	CR Salary Payable	DR Salary Expense	CR Cash	CR Salary Payable	Notes	
31-Dec	M	$500		$500		($500)	$500		($500)	(a)	AJE
1-Jan	T	$500	$500	($500)		$500				(b)	RJE
2-Jan	W	$500	$500								
3-Jan	TH	$500	$500								
4-Jan	F	$500	$500	$2,500	($2,500)		$2,500	($2,500)		(c)	CDs
5-Jan	Sat										
6-Jan	Sun										
7-Jan	M	$500	$500								
8-Jan	T	$500	$500								
9-Jan	W	$500	$500								
10-Jan	TH	$500	$500								
11-Jan	F	$500	$500	$2,500	($2,500)		$2,500	($2,500)		(d)	CDs
12-Jan	Sat										
13-Jan	Sun										
14-Jan	M	$500	$500								
15-Jan	T	$500	$500								
16-Jan	W	$500	$500								
17-Jan	TH	$500	$500								
18-Jan	F	$500	$500	$2,500	($2,500)		$2,500	($2,500)		(e)	CDs
19-Jan	Sat										
20-Jan	Sun										
21-Jan	M	$500	$500								
22-Jan	T	$500	$500								
23-Jan	W	$500	$500								
24-Jan	TH	$500	$500								
25-Jan	F	$500	$500	$2,500	($2,500)		$2,500	($2,500)		(f)	CDs
26-Jan	Sat										
27-Jan	Sun										
28-Jan	M	$500	$500								
29-Jan	T	$500	$500								
30-Jan	W	$500	$500								
31-Jan	TH	$500	$500	$2,000		($2,000)				(g)	AJE
							$1,500		($1,500)	(h)	AJE
1-Feb	F	$500		($2,000)		$2,000				(i)	RJE
				$2,500		($2,500)	$2,500		($2,500)	(j)	CDs
2-Feb	Sat										
3-Feb	Sun										
January			$11,500	$11,500	($10,000)	($1,500)	$11,500	($10,000)	($1,500)		

(a) This entry is made and does not change, regardless of whether the firm is or is not using reversing entries. The accrual must be "booked" prior to the preparation of the firm's balance sheet and income statement, to show the salary expense, matched to the period, and record the liability on the firm's balance sheet.

(b) This entry is only made if the reversing entry approach is preferred. Note that a credit balance is initiated in the salary expense account.

(c) This entry is made and does not change, regardless of whether the firm is or is not using reversing entries. This is a cash disbursement for salary.

(d) This entry is made and does not change, regardless of whether the firm is or is not using reversing entries. This is a cash disbursement for salary.

(e) This entry is made and does not change, regardless of whether the firm is or is not using reversing entries. This is a cash disbursement for salary.

(f) This entry is made and does not change, regardless of whether the firm is or is not using reversing entries. This is a cash disbursement for salary.

(g) This adjusting journal entry is required to "plug" both expense and liability accounts to their "correct" balance prior to the preparation of the firm's balance sheet and income statement. Note that the amount differs from (h), below, by the $500 difference from the RJE in (b), above.

(h) This adjusting journal entry is required to "plug" both expense and liability accounts to their "correct" balance prior to the preparation of the firm's balance sheet and income statement. Note that the amount differs from (g), above, by the $500 difference from the RJE in (b), above.

(i) This entry is only made if the reversing entry approach is preferred. Note that a credit balance is initiated in the salary expense account. This is the same type of reversing journal entry made in (b), above.

(j) This entry is made and does not change, regardless of whether the firm is or is not using reversing entries. The accrual must be "booked" prior to the preparation of the firm's balance sheet and income statement, to show the salary expense, matched to the period, and record the liability on the firm's balance sheet. This is a February entry, so it is not highlighted or included when the January financial statements are prepared.

Summary

The decision to use or avoid the use of RJEs is a "taste and preference" issue. Some accountants prefer to use them and some prefer to avoid their use. In both cases, the financial statements achieve the same measures or balances. Their use does, of course, represent an additional step in the accounting and recordkeeping process.

Chapter 4[1]

Accounting for Merchandising Firms

Learning Objectives

- Define and describe merchandising activities.
- Describe income components for a merchandising firm.
- Identify and illustrate your understanding of inventory, an asset, and the cost flow assumptions applied to a merchandising company.
- Describe purchase returns, purchase discounts, and purchase allowances accounts and how they interact with gross and net purchases.
- Explain how transportation-in or freight-in accounts interact with gross and net purchases.
- Describe sales discounts, sales returns, and sales allowances accounts and how they interact with gross and net sales.
- Prepare adjusting journal entries and close nominal or temporary accounts for a merchandising firm.
- Prepare, define, explain and distinguish between single-step and multiple-step income statements.
- Compute and describe the value associated with the computation of the acid-test ratio with respect to asset liquidity.
- Compute and describe the value associated with the computation of the gross margin ratio with respect to the assessment of profitability assessment.
- Analyze and record inventory transactions for a merchandising company – purchases and sales – using both perpetual and periodic inventory systems.

[1] Acknowledgement: An earlier version of this chapter was provided to all accounting faculty on January 21, 2015, for review notes, comments, and recommendations for improvement. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

No, it is not an elephant.

Professor Cataldo and his wife, Holley, hold a stingray at Stingray City Antigua on December 31, 2014. They are large, but the crew feeds them, so they are very friendly.

Left to right, eBay was founded by Pierre Omidyar in 1995. Meg Whitman joined eBay in March 1998. As CEO, she grew the firm from 30 to 15,000 employees (2008). John Donahoe is the current CEO of eBay. Whitman joined Hewlett-Packard in 2011 as CEO (below).

Merchandising firms generate net income by buying and selling merchandise. They can be wholesalers or retailers. The **wholesaler** purchases goods from the **manufacturer** and sells to the **retailer**. A **retailer** purchases goods from a **wholesaler** and sells to the **consumer**.

Manufacturer
↓
Wholesaler
↓
Retailer
↓
Consumer

Merchandising Income

Service firms differ from merchandisers. Service firms (e.g., CPA firms or law firms) generate revenues or sales from the sale of services. Merchandisers generate revenues or sales from the sale of merchandise or what might be referred to as *cost of goods sold* or *cost of sales*. The *gross profit* or *gross margin* is *net sales* less *cost of goods sold* or *cost of sales*.

Service		
	Revenues	$100
less:	Expenses	$80
equals:	Net Income	$20

Merchandising		
	Net Sales	$100
less:	Cost of Goods Sold	$60
equals:	Gross Profit	$40
less:	Expenses	$20
equals:	Net Income	$20

Merchandise Inventory (or simply inventory) is a current asset included on a merchandiser's balance sheet. The cost of merchandise inventory includes the costs incurred to buy the goods, ship them to the store, and prepare them for sale.

A Merchandiser's Operating Cycle includes the (1) purchase goods or merchandise for inventory, (2) providing merchandise inventory available for sale, and (3) sell merchandise. The sale can be a cash sale, resulting in an immediate cash receipt, or a credit sale. If credit is extended to the buyer, an (4) account receivable is created and (5) a cash receipt or collection leads to the completion of the cycle, which is repeated. Merchandisers try to accelerate or shorten these operating cycles, since each inventory "turn" or cycle results in the generation of additional gross profit or gross margin. It is, of course, possible for cash collections from customers to occur before and/or after cash payments are made to vendors.

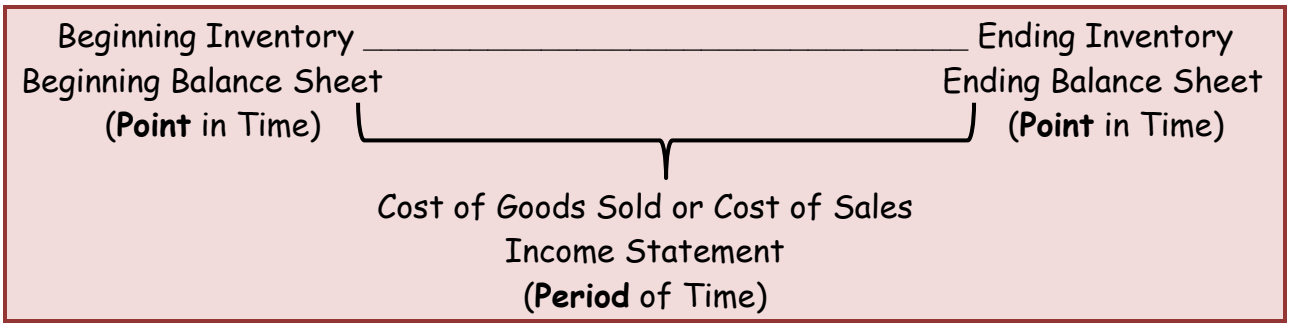
Inventory Systems

Cost of goods sold is the cost of merchandise inventory sold during a period. It is usually the largest single expense item on a merchandiser's income statement. Cost of goods sold or the cost of sales is computed, as follows:

	Beginning Inventory
plus:	**Net Purchases**
equals:	**Merchandise Available for Sale**
less:	**Ending Inventory**
equals:	**Cost of Goods Sold**

Merchandise available for sale equals the beginning inventory plus (net) purchases of additional inventory during the period. This merchandise available for sale is either sold (cost of goods sold) or remains in ending inventory.

In terms of the balance sheet and income statement, beginning inventory and ending inventory amounts represent amounts at a beginning and ending **point** in time, and are reflected in the beginning and ending balance sheets. The cost of goods sold or cost of sales are matched to the relevant **period** of time.



Inventory Alternatives

Two alternatives are available to account for inventory: the **perpetual** and **periodic** systems. Perpetual systems **continuously** update records for inventory sales and the cost of these sales (cost of goods sold), as sales occur. Periodic systems **periodically** update records for inventory sales and the cost of these sales, usually at the end of an accounting period (e.g., month, quarter, semi-annual or annual period). Hybrid systems are common, where a retail store, for example, accounts for some inventory classes or departments perpetually and others, periodically. Regardless of whether a firm uses perpetual or periodic inventory systems, a physical count is likely to be conducted annually, to verify perpetual and/or periodic balances maintained in the firms records.

An Example of Perpetual Inventory

Today, when you purchase an item at a retail outlet, the item is scanned at the checkout counter. This represents an example of a perpetual inventory system.

When scanned at checkout, the item is immediately deleted from inventory in the firm's recorded merchandise inventory balance. The sale, revenue or retail price is immediately "matched" to the cost of goods sold, as the cost of this item is removed from inventory available for sale. The gross margin is immediately available (revenue *less* cost of goods sold *equals* gross margin), and can be accessed by the firm's management, online and real-time.

The same could be said for sales returns. These items, when scanned, are returned or added back to inventory balances. The inventory account is increased and cost of goods sold is decreased for the cost of merchandise returned by the buyer.

Merchandise purchases and the cost of merchandise purchased for resale is recorded (debited) to merchandise inventory, a current asset account. For example, assume that Flynn Enterprises made a $1,000 cash purchase of merchandise on February 15, as follows:

Feb. 15	Merchandise Inventory	$1,000	
	Cash		$1,000

Purchase discounts, returns, allowances are contra accounts (credits). Freight-in or transportation-in are additional costs (debits). When combined or netted with gross purchases, all of these measures equal net purchases. Typical balances of accounts follows:

	Gross Purchases		Debit
less:	Purchase Discounts	Credit	
less:	Purchase Returns	Credit	
less:	Purchase Allowances	Credit	
plus:	Transportation-In	Debit	Credit
equals:	Net Purchases		Debit

Notice that purchase discounts, returns and allowances are accounted for in a "grossed-up" fashion and not netted. This is to allow management to monitor and investigate (1) the impact of discounts they offer or take advantage of, (2) returns of merchandise, to track them to specific items or suppliers, and (3) allowances, the frequency of which might help to identify problem delivery services or products. If these separate accounts were not maintained, the seller or purchaser might not otherwise become aware of problems with merchandise, adversely impacting relations with their customers or suppliers and their business.

Purchase discount is a contra account. A discount is provided as an incentive to the customer to buy early and pay quickly, to improve the selling firm's sales and cash inflows. Terms may vary. For example, **n/10 EOM** means "pay the net amount 10 days after end of month," **n/30** means "pay within 30 days of the invoice date," and **2/10, n/60** means "full payment is due in 60 days, but you may deduct 2 percent of the invoice amount if paid within 10 days of the invoice." Other alternatives are possible.

Assume that Flynn Enterprises, in the above example, made the same $1,000 purchase, but on credit. The terms were 2/10, n/60:

Feb. 15	Merchandise Inventory	$1,000	
	Accounts Payable		$1,000

If Flynn Enterprises pays the entire amount on February 25:

Feb. 25	Accounts Payable	$1,000	
	Merchandise Inventory		$20
	Cash		$980

After these transactions, the merchandise inventory account will reflect the net cost and the accounts payable account will show a zero balance. Both of these accounts are shown in T-account form, below:

Merchandise Inventory		Accounts Payable	
Feb. 15 $1,000			Feb. 15 $1,000
	Feb. 25 $20	Feb. 25 $1,000	
Balance $980			Balance $-0-

Purchase Discounts and the Implied Annual Interest Rate

Most buyers take advantage of these types of discounts. To understand why, compute the **implied annual interest rate**.

The firm can pay the full amount in 60 days or take advantage of the 2% discount by paying in 10 days. Therefore, waiting 50 days costs the firm 2%.

Assuming a 30 day month and 360 day year, there are approximately 7.2 50 day periods in a calendar year. Therefore, taking advantage of the 2% discount is comparable to generating an annual return of approximately 14.4% on these purchase discounts. If a firm can borrow at 10% to save 14.4%, they are reducing costs and improving their profitability – a strategy that would be perceived by external parties as superior management.

	If paid in	Purchase Discount Savings
	60 days	0%
less:	10 days	2%
equals:	50 days	2%
	360 days	
divided by:	50 days	
equals:	7.2 times	
multiplied by:	2%	
equals:	14.4%	

Purchase Returns and Allowances are also contra accounts. This is merchandise that the buyer returns to the seller, for a variety of reasons (e.g., a defective item or not suitable for some other reason). Sometimes, a buyer will keep an item if an "allowance" or price reduction is offered.

Assume that Flynn Enterprises made the same $1,000 purchase on credit. The terms continue to remain at 2/10, n/60:

Feb. 15	Merchandise Inventory	$1,000	
	Accounts Payable		$1,000

Flynn Enterprises returned a portion of the purchase. The seller has a very liberal return policy, and Flynn Enterprises simply purchased a larger quantify of goods than required. The return of $100 of merchandise occurred on February 20:

Feb. 20	Accounts Payable	$100	
	Merchandise Inventory		$100

If Flynn Enterprises pays for the remainder ($900) on February 25:

Feb. 25	Accounts Payable	$900	
	Merchandise Inventory		$18
	Cash		$882

After these transactions, the merchandise inventory account will reflect the net cost and the accounts payable account will show a zero balance. Both of these accounts are shown in T-account form, below:

Merchandise Inventory		Accounts Payable	
Feb. 15 $1,000			Feb. 15 $1,000
	Feb. 20 $100	Feb. 20 $100	
	Feb. 25 $18	Feb. 25 $900	
Balance $882			Balance $-0-

Note that Merchandise Inventory is always recorded at the final cost to the buyer. The final cost to the buyer is the purchase price or gross **Purchases** less **Purchase Discounts**, **Purchase Returns** and/or **Purchase Allowances** received from the seller.

There is an additional cost to the buyer. Recall that this additional cost is the cost of freight-in, transportation-in, shipping or delivery charges, as follows:

	Gross Purchases		Debit
less:	Purchase Discounts	Credit	
less:	Purchase Returns	Credit	
less:	Purchase Allowances	Credit	
plus:	Transportation-In	Debit	Credit
equals:	Net Purchases		Debit

Transportation Cost and Transfer of Ownership

Buyers and sellers must agree on transportation costs and related risks. At what point does ownership transfer from the buyer to the seller? The point in time when ownership transfers is referred to as the FOB (free on board). This point determines who bears the cost of transportation and merchandise insurance against the risk of damage or loss. There are two alternatives:

1. **FOB shipping point** or **FOB factory** means the buyer accepts ownership and all related risks when merchandise leave the seller's place of business. Merchandise-related shipping costs and insurance costs and risk of damage while in transit are the buyer's responsibility. Ownership transfers and the merchandise becomes part of the buyer's inventory when departing the seller's location. Similarly, the merchandise is presumed to have been sold, from the seller's perspective, once the merchandise leaves their location.

2. **FOB destination** means the buyer accepts ownership and all related risks after merchandise arrives, undamaged. Merchandise-related shipping costs and insurance costs and risk of damage while in transit are the seller's responsibility. Ownership transfers and the merchandise becomes part of the buyer's inventory once it has arrived and is accepted by the buyer. Similarly, the merchandise is presumed to have been sold, from the seller's perspective, only once the merchandise is accepted at its destination.

If the buyer agrees to pay the transportation cost for merchandise inventory, this transportation cost is added to the cost of merchandise inventory, as follows:

Merchandise Inventory	$xxx	
Cash		$xxx

Alternatively, a separate account could be established to maintain data on the amount of transportation-in or freight-in charges included in merchandise inventory:

Transportation-In	$xxx	
Cash		$xxx

If the seller pays the cost of transportation or delivery, they would record the cost in a **Delivery Expense** or **Transportation-Out** or **Freight-Out** account.

Therefore, from the buyer's perspective, **Net Purchases** is used for the computation of ***Cost of Goods Sold***, and can be summarized, as follows:

	Gross Purchases
less:	Purchase Discounts
less:	Purchase Returns
less:	Purchase Allowances
plus:	Transportation-In
equals:	Net Purchases

	Beginning Inventory
plus:	Net Purchases
equals:	Merchandise Available for Sale
less:	Ending Inventory
equals:	Cost of Goods Sold

Alternatively,

Beginning Inventory		$ xxx
Gross Purchases	$ xxx	
Purchase Discounts	$(xxx)	
Purchase Returns	$(xxx)	
Purchase Allowances	$(xxx)	
Transportation-In	$ xxx	
Net Purchases		$ xxx
Merchandise Available for Sale		$ xxx
Ending Inventory		$(xxx)
Cost of Goods Sold		$ xxx

Tracking Merchandise Purchases

In today's world, it is common for the buyer to be able to "track" items as their purchase orders are filled and shipped for delivery. Both buyer and seller use identifying tracking identification numbers and may be notified by email of the progress as the merchandise proceeds from its shipping point to its destination.

Merchandise Sales

The price received by a seller of merchandise is recorded (credited) to sales (or revenues). For example, assume that the Oehlers Corporation made a $1,500 cash sale on March 15, as follows:

If the sale was a cash sale, it would be recorded, as follows:

Mar. 15	Cash	$1,500	
	Sales		$1,500

If the sale was a credit sale, it would be recorded, as follows:

Mar. 15	Accounts Receivable	$1,500	
	Sales		$1,500

Whether a cash sale or a credit sale, the cost of the merchandise inventory sold must be recorded as a reduction in the available inventory, expensed as cost of goods sold and "matched" to the revenue or sales, as follows:

Mar. 15	Cost of Goods Sold	$1,000	
	Merchandise Inventory		$1,000

Therefore, this single sale of $1,000 in merchandise at $1,500 produces a gross profit of $500, as follows:

Gross Sales	$1,500
less: Cost of Goods Sold	1,000
equals: Gross Profit	$500

If the sale was made on credit, the cash collection of the accounts receivable, on March 20, would be recorded, as follows:

Mar. 20	Cash	$1,500	
	Accounts Receivable		$1,500

After collecting cash, in the case of the credit sale, the accounts receivable account will show a zero balance, as follows:

Sales	Accounts Receivable	Cash
Mar. 15 $1,500	Mar. 15 $1,500	
	Mar. 20 $1,500	Mar. 20 $1,500
	Balance $-0-	

Sales discounts, returns, allowances are contra accounts (debits). When combined or netted with gross sales, all of these measures equal net sales. Typical balances of sales and related contra accounts follows:

	Gross Sales		Credit
less:	Sales Discounts	Debit	
less:	Sales Returns	Debit	
less:	Sales Allowances	Debit	Debit
equals:	Net Sales		Credit

Note that, with the exception of the transportation-in or freight-in account, the computations from gross sales to net sales and the computations from gross purchases to net purchases are comparable.

	Gross Purchases		Debit
less:	Purchase Discounts	Credit	
less:	Purchase Returns	Credit	
less:	Purchase Allowances	Credit	
plus:	Transportation-In	Debit	Credit
equals:	Net Purchases		Debit

Sales discount is a contra account. Just as was the case for purchase discounts, sales discounts are provided to the buyer as an incentive to buy early and pay quickly, to improve the selling firm's sales and cash inflows. The same terms may apply and can vary. Recall that **n/10 EOM** means "pay the net amount 10 days after end of month," **n/30** means "pay within 30 days of the invoice date," and **2/10, n/60** means "full payment is due in 60 days, but you may deduct 2% of the invoice amount if paid within 10 days of the invoice." Again, other alternatives are possible.

Assume that Oehlers Corporation, in the above example, made the same $1,500 purchase, but on credit. The terms were 2/10, n/60:

Mar. 15	Accounts receivable	$1,500	
	Sales		$1,500

If Oehlers Corporation pays the entire amount on March 20:

Mar. 20	Cash	$1,470	
	Sales discount	$30	
	Accounts receivable		$1,500

After these transactions, the merchandise inventory account will reflect the net cost and the accounts payable account will show a zero balance. Both of these accounts are shown in T-account form, below:

Sales		Accounts Receivable	
	$1,500 Feb.15	Feb. 15 $1,500	
			$1,500
	$1,500 Balance	$-0-	$-0-

Cash		Sales Discount	
$1,470		$30	

As was the case for purchase discounts, purchase returns, and purchase allowances, a firm might have sales discounts, sales returns, and sales allowances.

Sales return is a contra account. The sales returns account is increased (debited) and cash or accounts receivable is decreased (credited) for the selling price of any merchandise inventory returned by the buyer. In addition, a sales return must be returned to inventory.

For example, assume that Oehlers Corporation sold merchandise that cost $500 for $1,000. There was nothing wrong with the merchandise, but Oehlers has a 100%, 30 day refund or return policy. A customer returned the item 1 week after it was purchased, as follows, for the sale:

Mar. 15	Accounts receivable	$1,000	
	Sales		$1,000

Mar. 15	Cost of goods sold	$500	
	Inventory		$500

Accounting for the return, 1 week later, on March 21:

Mar. 21	Sales return	$1,000	
	Accounts receivable		$1,000

Mar. 21	Inventory	$500	
	Cost of goods sold		$500

Sales allowance is also a contra account. A sales allowance is issued for damaged merchandise, when the customer and the merchant mutually agree that a discount is preferable to a return. Assume that Oehlers offers a 10% allowance to a customer for some damaged merchandise that the customer likes, does not really want to return for a

refund, but, also, does not want to pay the full price. Assume the sale occurred at $500 and both agree to a $50 sales allowance on March 25:

Mar. 25	Sales allowance	$500	
	Accounts receivable		$500

Sales discounts, sales returns, and sales allowances can be set up as separate accounts and monitored, as follows:

Gross Sales		$120
less: Sales Discounts	$5	
less: Sales Returns	$7	
less: Sales Allowances	$8	20
equals: Net Sales		$100

Both sales and purchases, in an expanded or grossed-up form, are outlined below:

Gross Sales	$ xxx		
Sales Discounts	$(xxx)		
Sales Returns	$(xxx)		
Sales Allowances	$(xxx)		
Net Sales			$ xxx
Beginning Inventory		$ xxx	
Gross Purchases	$ xxx		
Purchase Discounts	$(xxx)		
Purchase Returns	$(xxx)		
Purchase Allowances	$(xxx)		
Transportation-In	$ xxx		
Net Purchases		$ xxx	
Merchandise Available for Sale		$ xxx	
Ending Inventory		$(xxx)	
Cost of Goods Sold			$ xxx
Gross Margin			$ xxx

Adjusting and Closing Entries for Merchandising Firms

In addition to sales and other revenue accounts, contra revenue accounts (i.e., sales discounts, sales returns, and sales allowances) must be closed to the income summary. In addition to cost of goods sold and other expense accounts, contra expense accounts (i.e., purchase discounts, purchase returns, and purchases allowances) must be closed to the income summary.

Financial Statement Formats

Generally accepted accounting principles (GAAP) permit different formats to be used for financial statements. Two common income statement formats are described in this section: multiple-step and single-step.

Multiple-Step Income Statement

The multiple-step income statement for the Oehlers Corporation is presented below. This statement provides for measures of (1) gross profit, (2) income from operations (gross profit less operating expenses), and (3) income and expense items not associated with operations (non-operating items, like gain and losses and interest revenues and expenses).

Oehlers Corporation
Income Statement
For Year Ended December 31, 2015

Sales		$1,000,000
Cost of Goods Sold		$550,000
Gross Profit		**$450,000**
Operating Expenses		
General, selling & administrative expenses		
Advertising expense	$20,000	
Depreciation expense	$5,000	
Insurance expense	$7,500	
Office supplies expense	$12,500	
Rent expense	$120,000	
Salaries expense	$235,000	
Total general, selling & administrative expenses		$400,000
Income from Operations		**$50,000**
Other revenues and expenses		
Interest revenue	$1,000	
Gain on sale of building	$3,500	
Interest expense	($1,500)	
Loss on sale of land	($500)	
Total Other revenues and expenses		$2,500
Net Income		**$52,500**

- Sales, in the above, are net sales. Recall that gross sales, less sales discounts, sales returns, and sales allowances are netted to arrive at net sales.
- Cost of goods sold is computed by adding net purchases to beginning inventory and subtracting ending inventory.
- Recall that gross purchases, less purchase discounts, purchase returns, and purchase allowances, and adding freight-in or transportation-in, before these measures are netted to arrive at net purchases.
- General, selling & administrative expenses might be separated into components (e.g., selling separated from general & administrative), if preferred. In these cases,

certain expenses might have to be allocated. If allocated, some systematic and rational approach will be developed to allocate expenses (e.g., rent expense might be allocated between selling and general & administrative based on the square footage consumed by each).

- Operating expenses might be arranged or sequenced alphabetically, as they have been in the above case, or from larger amounts to lesser amounts.

Single-Step Income Statement

The single-step income statement for Oehlers Corporation is presented below. Note that this presentation alternative may prove to be less useful. Measures of gross profit and income from operations are not immediately available.

Oehlers Corporation
Income Statement
For Year Ended December 31, 2015

Revenues		
Sales		$1,000,000
Interest revenue		$1,000
Gain on sale of building		$3,500
Total revenues		$1,004,500
Expenses		
Cost of Goods Sold	$550,000	
Total general, selling & administrative expenses	$400,000	
Interest expense	$1,500	
Loss on sale of land	$500	$952,000
Net Income		**$52,500**

Classified Balance Sheet – Current Assets

The classified balance sheet for a merchandising firm reports merchandise inventory as an asset. Assets are organized in order of liquidity, with cash first, followed by accounts receivable, soon to be received in cash, and inventory, which must be sold on cash or credit terms and will either become an accounts receivable or paid in cash.

Office supplies inventory and store supplies inventory are for consumption during operations and, unlike merchandise inventory, are not held for resale. Prepaid expenses can include prepaid rent, utilities, insurance and a variety of operating expense.

Oehlers Corporation
Balance Sheet
For Period Ended December 31, 2015

Current assets	
Cash	$2,800
Accounts receivable	$12,100
Merchandise inventory	$21,000
Office supplies	$350
Store supplies	$150
Prepaid expenses	$600
Total current assets	$37,000

The above illustrates the order or sequence of assets in the firm's balance sheet, but only for assets. Cash, the most liquid current asset, is listed first. Prepaid expenses, the least liquid current asset, are presented last. Non-current assets, liabilities and owners' equity components are not presented, but the complete, classified balance sheet will be covered in a later chapter.

Appendix A

Acid-Test (Quick) Ratio

Chapter 3, Appendix B, introduced the **Current Ratio**, as follows:

A firm's ability to pay near-term debts or liabilities is quickly and easily assessed by computing their *current ratio*, as follows:

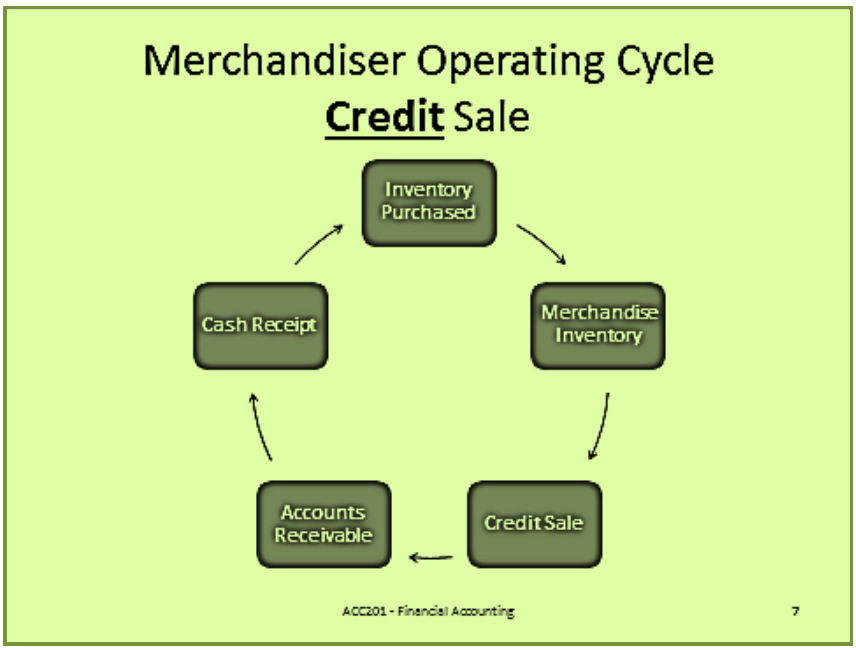
Current Ratio = Current Assets ÷ Current Liabilities

Suppliers and creditors would use this ratio to formulate a decision with respect to the firm's credit worthiness. They would compute and use this measure to assist them in deciding whether they might decide to extend credit to the firm.

The *acid-test ratio* (or *quick ratio*) represents a more *liquid* modification of the current ratio, as follows:

Acid-Test Ratio = [Current Assets – Prepaid Expenses – Inventory] ÷ Current Liabilities

Note that inventory and prepaid expenses are both excluded from the numerator, providing for a higher standard of liquidity, when compared to the current ratio. Recall that inventory must first be sold before any credit sales result in accounts receivable, as follows:



Appendix B

Gross Margin Ratio

Frequently, the strength of a firm is determined by its ability to maintain gross margins. For example, a higher gross margin ratio suggests that the firm has industry leadership and/or cost efficiencies and/or the ability to maintain a relatively high price for its product or service, relative to competitors.

The computation of the *gross margin ratio* follows:

Gross Margin Ratio = [Net Sales – Cost of Goods Sold] ÷ Net Sales

The below has been extracted from a story that appeared in mid-February 2015, with respect to Apple's (NASDAQ: AAPL) gross margins

> *Apple reported gross margin of 39.9% in the most recent quarter, which was up from 38.0% in the September quarter.*

This is favorable news, and the maintenance (or improvement) in gross margin ratio tends to have a favorable impact on the firm's stock price. Below is a 1 year, split-adjusted chart of Apple's stock price through February 13, 2015:

Appendix C

Perpetual v. Periodic Inventory

There are two broad categories of accounting for inventory: periodic and perpetual.

Periodic inventory accounting systems require that inventory items be accounted for periodically. Perpetual systems account for inventory in real time, after each and every transaction.

Note, in the below, that the only difference between periodic and perpetual systems involve the use of (1) purchases, (2) purchase discount, (3) purchase return, (4) purchase allowance, and (5) freight-in or transportation-in accounts for periodic inventory accounting systems, all of which are replaced by the merchandise inventory account under a perpetual inventory accounting system.

PERIODIC			PERPETUAL		
Purchases	$ xx		Merchandise inventory	$ xx	
Accounts payable		$ xx	Accounts payable		$ xx
Accounts payable	$ xx		Accounts payable	$ xx	
Purchase discount		$ xx	Merchandise inventory		$ xx
Cash		$ xx	Cash		xx
Accounts payable	$ xx		Accounts payable	$ xx	
Purchase return		$ xx	Merchandise inventory		$ xx
Accounts payable	$ xx		Accounts payable	$ xx	
Purchase allowance		$ xx	Merchandise inventory		$ xx
Transportation-in	$ xx		Merchandise inventory	$ xx	
Cash		$ xx	Cash		$ xx

Just think of any retail outlet check-out counter, where an item is scanned. The scanner is connected to a computer that adjusts inventory balances, in real time or perpetually.

In the case of sales, the only difference between periodic inventory and perpetual inventory systems is that cost of goods sold and inventory balances are updated, in real time, in the case of the perpetual inventory system. Again, you can think of any retail outlet check-out counter and scanner, where both retail price and cost of goods sold are stored in the store computer. Effectively, these systems can compute gross margins on each and every sale, in real time.

PERIODIC			PERPETUAL		
Accounts receivable	$ xx		Accounts receivable	$ xx	
Sales		$ xx	Sales		$ xx
			Cost of goods sold	$ xx	
			Merchandise inventory		$ xx
Cash	$ xx		Cash	$ xx	
Sales discounts		$ xx	Sales discounts		$ xx
Accounts receivable		$ xx	Accounts receivable		$ xx
			Merchandise inventory	$ xx	
			Cost of goods sold		$ xx
Sales returns	$ xx		Sales returns	$ xx	
Accounts receivable		$ xx	Accounts receivable		$ xx
			Merchandise inventory	$ xx	
			Cost of goods sold		$ xx
Sales allowances	$ xx		Sales allowances	$ xx	
Accounts receivable		$ xx	Accounts receivable		$ xx

Chapter 5[1]

Accounting for Inventories

Learning Objectives

- Identify items comprising merchandise inventory and merchandise inventory costs.
- List the four basic inventory methods or cost flow assumptions.
- Compute inventory and cost of goods sold when using a perpetual system and under cost flow assumptions: specific identification, FIFO, LIFO and weighted average.
- Identify and define the inventory method likely to result in higher cost of goods sold and lower gross margin and net income.
- Identify and define the inventory method likely to result in lower cost of goods sold and higher gross margin and net income.
- Explain which inventory method(s) are likely to benefit a firm for tax accounting purposes.
- Analyze the impact of inventory errors on current and future financial statements.
- Explain why none of the inventory cost flow assumptions alter the physical flow of inventory units.
- Compute inventory under the lower of cost or market (LCM) method of inventory valuation.
- Describe and explain the usefulness of the inventory turnover ratio.
- Describe and explain the usefulness of days' sales in inventory.
- Compute inventory and cost of goods sold when using a periodic system and under cost flow assumptions: specific identification, FIFO, LIFO and weighted average.
- Apply both retail inventory and gross profit methods to the estimation of inventory and inventory valuation.

[1] Acknowledgement: An earlier version of this chapter was provided to all accounting faculty on January 29, 2015, for review notes, comments, and recommendations for improvement. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

The West Chester Chapter of the Institute of Management Accountants hosted a joint meeting with the student chapter at West Chester University on Monday, November 17, 2014. The meeting provided a forum to introduce the Chapter's new Mentoring Program where experienced accountants provide mentoring to students. The session included "speed networking" opportunities with accountants experienced in: Public Accounting, Large Business Accounting, Big 4 Consulting, Controller-Financial Services, Small Business and Education.

Ms. Norkiewicz has 30 years' experience in private industry and public sector accounting operations, financial management and systems implementation. For the last 17 years she consulted for Deloitte Consulting, PwC and American Management Systems in various positions as project manager and financial systems expert for Oracle, PeopleSoft, Siebel and Lawson ERP implementations with private industry, DoD Intelligence Agencies, and the US Military. With her background in Federal Accounting, she conducted detailed system assessments to determine auditability and compliance with federal financial law and regulation. Ms. Norkiewicz served as an advisor on the Plant Property & Equipment (PP&E) Sub-Committee of the Accounting and Auditing Policy Committee (AAPC) which is a permanent committee established by the Federal Accounting Standards Advisory Board (FASAB).

She has been published in *Management Accounting* (currently *Strategic Accounting*), *Corporate Controller* and has been a speaker, frequently, on Cost Management topics at programs sponsored by the American Association of Government Accountants and the Kellogg School of Business at Northwestern University. She is active in the Institute of Management Accountants (IMA). She, presently, serves as President of the West Chester PA Chapter of the IMA and, previously, served as President of the Harrisburg Chapter and Mid-Atlantic Council.

- B.S. Drexel University
- M.B.A. Shippensburg University
- Project Management Professional (PMP)
- Certified Defense Financial Manager (CDFM).

Amazon.com has received some criticism over heavy debt levels, and saw a stock price decline in 2014, from more than $400 per share to less than $300 per share:

Source: Yahoo!Finance on January 27, 2015.

Inventory represents a material or significant current asset for retail and manufacturing firms (e.g., Wal-Mart and General Motors, respectively). Inventory is a less significant or material current asset or asset class for service firms (e.g., law and accounting firms). This chapter deals with alternative methods used to value inventory in the firm's balance sheet and allocate costs to the cost of goods sold section of the firm's income statement.

Basic Inventory Classifications

Merchandise inventory includes all inventory owned and held for sale, but special attention may be required for (1) goods in transit, (2) goods held on consignment, and (3) good that have been damaged or are obsolete:

1. Goods in transit are included in a firm's inventory, as an asset, only when ownership has passed. The inventory that is in transit is either FOB destination or FOB shipping point, where FOB is short for "freight on board."
- FOB shipping point – ownership passes to the buyer when shipped (shipping point), included in inventory at that point in time, and the purchaser is responsible for paying the freight and related costs associated with transport.
- FOB destination – ownership passes to the buyer when the goods arrive (destination), included in inventory at that point in time, and the seller is responsible for paying the freight and related costs associated with transport.

2. Goods held on consignment are not part of the consignee's (seller, but not owner) inventory, and remain the property or inventory of the consignor (owner) until sold. They must be excluded from the consignee's inventory, even though the consignee may have physical possession of these assets.
3. Damaged or obsolete or spoiled goods are excluded from inventory (for sale), but must be monitored to examine and manage these amounts, which should not be material or significant. They must be valued at net realizable value, which is defined as sales price less the cost of disposition. The cost of disposition can be estimated. The reduction in value is accounted for as a loss and recorded or matched to the period when the lost value occurs.

Beginning Inventory, Ending Inventory and Cost of Goods Sold Computations

The basic formula for beginning inventory, ending inventory and cost of goods sold warrants introduction, as follows:

	Beginning Inventory	$XX
add:	Purchases of Inventory	$XX
equals:	Inventory Available for Sale during the Period	$XX
less:	Ending Inventory	$XX
equals:	Cost of Goods Sold	$XX

The Cost of Inventory
Inventory is maintained in the firm's asset section of the balance sheet at cost, which is defined as cost, less discounts, plus import duties, freight, storage, insurance, and, in the case of wine and cheese, the ordinary costs of aging for sales. Some incidental costs, if immaterial or insignificant, are expensed in their own categories and not "traced" directly to inventory. This is done when the cost of this accounting process exceeds the benefits, and is completely acceptable as long as the technique is consistently applied for each period, to achieve comparability.

Physical Counts of Inventory
A perpetual system of inventory accounting is updated, in real time, for each purchase and sale. However, theft, loss, damage, and human error require periodic physical counts to verify the inventory level recorded in the firm's accounting system. Some firms do this one time per year, at fiscal year-end (e.g., retailers after Christmas and after year-end sales, usually at the end of January). Others do a component every month or every quarter, to smooth the additional work flow required over the calendar and/or fiscal year.

Inventory and Internal Control
Inventory may represent one of the most valuable assets, particularly for a retailer. Physical counts of inventory require internal controls, including:

1. Pre-numbered inventory tickets that must be accounted for,
2. Inventory counters (or an external service) that does not include those charged with inventory record keeping,
3. Inventory counters that verify existence, amount and quality of inventory,
4. A second count to verify the first count (or a sample of second counts), and
5. Supervision to confirm that inventory items are not double-counted.

Inventory Cost Flow Assumptions
There are 4 basic inventory techniques or cost flow assumptions: (1) first-in, first-out (FIFO), (2) weighted-average (WAVG), (3) last-in, first-out (LIFO), and (4) specific identification, the last of which would be likely to be used and applied only for very costly items (e.g., real property or housing or automobiles). It is very important to understand that these "cost flow assumptions" need no bear any resemblance to actual units purchased and sold, except in the case of "specific identification," which is described below, and in the context of all 4 of the basic inventory methods or techniques.

To illustrate patterns that tend to hold for the first 3 methods of inventory valuation, the below example is provided. In this case, 5 units were in beginning inventory and 5 units were purchased during the period or month. Then, 5 units were sold during the month and 5 units remained in ending inventory. Assume that this was an inflationary period, so the 5 units in beginning inventory cost only $1.10 and the later 5 units were purchased during the period at a cost of $1.20 per unit, as follows:

		Units	Unit Cost	FIFO	WAVG	LIFO
	Beginning Inventory	5	$1.10	$5.50	$5.50	$5.50
add:	Purchases	5	$1.20	$6.00	$6.00	$6.00
equals:	Available	10		$11.50	$11.50	$11.50
less:	Ending Inventory	5		$6.00	$5.75	$5.50
equals:	Cost of Goods Sold	5		$5.50	$5.75	$6.00

The table, above, illustrates the difference between the 3 cost flow assumptions, but only for a first period of application (e.g., an initial year of a firm's operations), for simplicity. Note that the beginning Inventory, purchases, and cost of goods available for sale is the same for all cost flow assumptions.[2] Effectively, these different cost flow assumptions result in differences in allocations of costs between the balance sheet for ending Inventory and to the income statement for cost of goods sold, as follows:

FIFO $5.50
WAVG $5.50
LIFO $5.50 **Understates Inventory in the Balance Sheet** **FIFO $6.00**
WAVG $5.75
LIFO $5.50

Beginning Inventory _____ Ending Inventory
Beginning Balance Sheet — Ending Balance Sheet
(**Point** in Time) (**Point** in Time)

Cost of Goods Sold or Cost of Sales
Income Statement
(**Period** of Time)

FIFO $5.50
WAVG $5.75
Minimizes Profit by Matching Current Cost to Current Revenue **LIFO $6.00**

[2] Beginning Inventory and cost of goods available for sale would be different if this was not the first year of operations, since ending Inventory is different and ending Inventory for this period is beginning Inventory for the next or second period.

A Single Fact Pattern – A Perpetual Inventory System

The below will be used to illustrate the impact of an inventory cost flow assumption on a firm's selected balance sheet and income statement measures for the month of March. Assume that the firm uses the perpetual inventory system. Therefore, merchandise inventory is continuously updated to reflect merchandise inventory purchases and retail sales.

Date	Description	Units & Cost	Units & Sales	Inventory
1-Mar	Beginning Inventory	8 at $40 = $320		8 units
3-Mar	Purchased	12 at $50 = $600		20 units
8-Mar	Sold		15 at $70	5 units
18-Mar	Purchased	18 at $55 = $990		23 units
25-Mar	Purchased	9 at $57 = $513		32 units
31-Mar	Sold		20 at $75	12 units
	Totals	47 units	35 units	

Journal entries for all of the above transactions are summarized, below. Cost of goods sold (debits) to be matched to sales and costs to be removed from merchandise inventory (credits) are dependent on the ***cost flow assumption***:

PURCHASES FOR MERCHANDISE INVENTORY
These amounts do not change

3-Mar	Merchandise Inventory	$600	
	Accounts Payable		$600

18-Mar	Merchandise Inventory	$990	
	Accounts Payable		$990
25-Mar	Merchandise Inventory	$513	
	Accounts Payable		$513

SALES & COST OF GOODS SOLD
Cost of Goods Sold and Merchandise Inventory measures change and/or depend on the ***cost flow assumption***

8-Mar	Accounts Receivable	$1,050	
	Sales		$1,050
	Cost of Goods Sold	(a)?	
	Merchandise Inventory		(a)?

31-Mar	Accounts Receivable	$1,500	
	Sales		$1,500
	Cost of Goods Sold	(b)?	
	Merchandise Inventory		(b)?

The above fact pattern will be used to illustrate the appropriate measures to be debited to cost of goods sold and credited to merchandise inventory accounts for the (1) specific identification, (2) first-in, first-out (FIFO), (3) weighted average (WAVG), and (4) last-in, first out (LIFO) methods of inventory valuation and cost flow assumptions.

Specific Identification

Specific identification is frequently used to account for very expensive items that are easily and cost-effectively tracked (e.g., automobiles with vehicle identification numbers or VINs).

Date	Description	Units & Cost	Units & Sales	Inventory
1-Mar	Beginning Inventory	8 at $40 = $320		8 units
3-Mar	Purchased	12 at $50 = $600		20 units
		[average cost of $46.00]		
8-Mar	Sold		15 at $70	5 units
18-Mar	Purchased	18 at $55 = $990		23 units
25-Mar	Purchased	9 at $57 = $513		32 units
		[average cost of $54.16]		
31-Mar	Sold		20 at $75	12 units
	Totals	47 units	35 units	

Journal entries for all of the above transactions are summarized, below.

PURCHASES FOR MERCHANDISE INVENTORY
These amounts do not change

3-Mar	Merchandise Inventory	$600	
	Accounts Payable		$600

Sale of 15 units →
[5 @ $40 & 10 @ $50]

18-Mar	Merchandise Inventory	$990	
	Accounts Payable		$990
25-Mar	Merchandise Inventory	$513	
	Accounts Payable		$513

Sale of 20 units →
[13 @ $55 & 7 @ $57]

SALES & COST OF GOODS SOLD
Accounts Receivable and Sales do not change. Cost of Goods Sold and Merchandise Inventory measures change and depend on the ***cost flow assumption***

8-Mar	Accounts Receivable	$1,050	
	Sales		$1,050
	Cost of Goods Sold	$700	
	Merchandise Inventory		$700

31-Mar	Accounts Receivable	$1,500	
	Sales		$1,500
	Cost of Goods Sold	$1,114	
	Merchandise Inventory		$1,114

After these transactions, the Merchandise Inventory account will reflect ending Merchandising Inventory balance of $609, as shown in T-account form, below:

Merchandise Inventory			
Beginning	$320		
Mar. 3	600		
		Mar. 8	$ 700
Subtotal	$220		
Mar. 18	990		
Mar. 25	513		
		Mar. 31	$1,114
Ending	$609		

T-accounts for Sales and Cost of Goods Sold follow:

Cost of Goods Sold			
Mar. 8	$ 700		
Mar. 31	1,114		
Mar.	$1,814		

Sales			
		Mar. 8	$1,050
		Mar. 31	1,500
		Mar.	$2,550

The following are the computations and Sales, Cost of Goods Sold, and Gross Profit measures for the March 8th and March 31st sales, as well as those for both, representing sales for the entire month of March:

		(a) Sales on 8-Mar	(b) Sales on 31-Mar	Sales for the Month of March
	Sales	$1,050.00	$1,500.00	$2,550.00
less:	Cost of Goods Sold	$700.00	$1,114.00	$1,814.00
equals:	Gross Profit	$350.00	$386.00	$736.00
	Beginning Inventory	$320.00	$220.00	$320.00
plus:	Purchases	$600.00	$1,503.00	$2,103.00
equals:	Available for Sale	$920.00	$1,723.00	$2,423.00
less:	Ending Inventory	$220.00	$609.00	$609.00
equals:	Cost of Goods Sold	$700.00	$1,114.00	$1,814.00

First-In, First-Out

First-in, first-out (FIFO) assumes that the costs that flowed into inventory, first, are to be matched to the revenues, first.

Date	Description	Units & Cost	Units & Sales	Inventory
1-Mar	Beginning Inventory	8 at $40 = $320		8 units
3-Mar	Purchased	12 at $50 = $600		20 units
		[average cost of $46.00]		
8-Mar	Sold		15 at $70	5 units
18-Mar	Purchased	18 at $55 = $990		23 units
25-Mar	Purchased	9 at $57 = $513		32 units
		[average cost of $54.78]		
31-Mar	Sold		20 at $75	12 units
	Totals	47 units	35 units	

On March 8, 15 units were sold (see above). Which unit costs were the first-in? Eight units at $40 each were the first-in (see above and below).

On March 31st 20 units were sold (see above and below). Which of the remaining unit costs were the first-in? All 8 of the beginning inventory units and 7 of the March 3rd cost units were sold on March 8th. If we assume that costs flow FIFO, 5 of the 12 units purchased on March 3rd remain in inventory. Therefore, these 5 units are sold next, along with 15 of the 18 units purchased on March 18th (see above and below).

Journal entries for all of the above transactions are summarized, below.

PURCHASES FOR MERCHANDISE INVENTORY
These amounts do not change

3-Mar	Merchandise Inventory	$600	
	Accounts Payable		$600

Sale of first 15 units →
[8 @ $40 & 7 @ $50]

18-Mar	Merchandise Inventory	$990	
	Accounts Payable		$990
25-Mar	Merchandise Inventory	$513	
	Accounts Payable		$513

Sale of next 20 units →
[5 @ $50 & 15 @ $55]

SALES & COST OF GOODS SOLD
Accounts Receivable and Sales do not change. Cost of Goods Sold and Merchandise Inventory measures change and depend on the ***cost flow assumption***

8-Mar	Accounts Receivable	$1,050	
	Sales		$1,050
	Cost of Goods Sold	$670	
	Merchandise Inventory		$670

31-Mar	Accounts Receivable	$1,500	
	Sales		$1,500
	Cost of Goods Sold	$1,075	
	Merchandise Inventory		$1,075

After these transactions, the Merchandise Inventory account will reflect ending Merchandising Inventory balance of $678 (FIFO), as shown in T-account form, below:

Merchandise Inventory			
Beginning	$320		
Mar. 3	600		
		Mar. 8	$ 670
Subtotal	$250		
Mar. 18	990		
Mar. 25	513		
		Mar. 31	$1,075
Ending	$678		

T-accounts for Sales and Cost of Goods Sold follow:

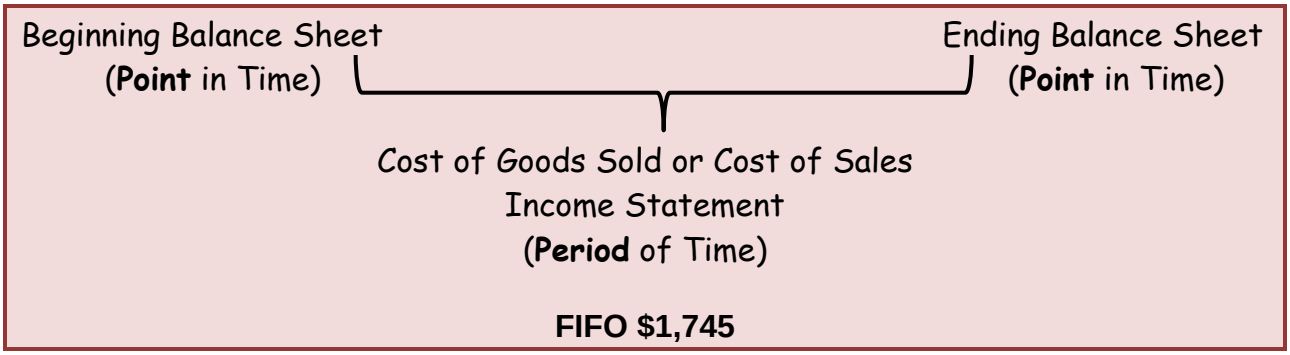
Cost of Goods Sold			
Mar. 8	$ 670		
Mar. 31	1,075		
Mar.	$1,745		

Sales			
		Mar. 8	$1,050
		Mar. 31	1,500
		Mar.	$2,550

The following are the computations and Sales, Cost of Goods Sold, and Gross Profit measures for the March 8th and March 31st sales, as well as those for both, representing sales for the entire month of March:

		(a) Sales on 8-Mar	(b) Sales on 31-Mar	Sales for the Month of March
	Sales	$1,050.00	$1,500.00	$2,550.00
less:	**Cost of Goods Sold**	$670.00	$1,075.00	$1,745.00
equals:	**Gross Profit**	$380.00	$425.00	$805.00
	Beginning Inventory	$320.00	$250.00	$320.00
plus:	**Purchases**	$600.00	$1,503.00	$2,103.00
equals:	**Available for Sale**	$920.00	$1,753.00	$2,423.00
less:	**Ending Inventory**	$250.00	$678.00	$678.00
equals:	**Cost of Goods Sold**	$670.00	$1,075.00	$1,745.00

FIFO $320	FIFO $678



Notes:

Weighted-Average or Moving Weighted-Average

Weighted-average (WAVG) assumes that units were sold at the average cost of inventory, which is recomputed after every purchase to match the moving weighted average cost of goods sold to sales or revenues for each sale.

Date	Description	Units & Cost	Units & Sales	Inventory
1-Mar	Beginning Inventory	8 at $40 = $320		8 units
3-Mar	Purchased	12 at $50 = $600		20 units
		[average cost of $46.00]		
8-Mar	Sold		15 at $70	5 units
18-Mar	Purchased	18 at $55 = $990		23 units
25-Mar	Purchased	9 at $57 = $513		32 units
		[average cost of $54.16]		
31-Mar	Sold		20 at $75	12 units
	Totals	47 units	35 units	

Journal entries for all of the above transactions are summarized, below.

PURCHASES FOR MERCHANDISE INVENTORY
These amounts do not change

3-Mar	Merchandise Inventory	$600	
	Accounts Payable		$600

Sale of 15 units →
[at $46.00 average cost]

18-Mar	Merchandise Inventory	$990	
	Accounts Payable		$990
25-Mar	Merchandise Inventory	$513	
	Accounts Payable		$513

Sale of 20 units →
[at $54.16 average cost]

SALES & COST OF GOODS SOLD
Accounts Receivable and Sales do not change. Cost of Goods Sold and Merchandise Inventory measures change and depend on the ***cost flow assumption***

8-Mar	Accounts Receivable	$1,050	
	Sales		$1,050
	Cost of Goods Sold	$690	
	Merchandise Inventory		$690

31-Mar	Accounts Receivable	$1,500	
	Sales		$1,500
	Cost of Goods Sold	$1,083	
	Merchandise Inventory		$1,083

After these transactions, the Merchandise Inventory account will reflect ending Merchandising Inventory balance of $678 (FIFO - rounded), as shown in T-account form, below:

Merchandise Inventory			
Beginning	$320		
Mar. 3	600		
		Mar. 8	$ 690
Subtotal	$250		
Mar. 18	990		
Mar. 25	513		
		Mar. 31	$1,083
Ending	$650		

T-accounts for Sales and Cost of Goods Sold (rounded) follow:

Cost of Goods Sold			
Mar. 8	$ 690		
Mar. 31	1,083		
Mar.	$1,773		

Sales			
		Mar. 8	$1,050
		Mar. 31	1,500
		Mar.	$2,550

The following are the computations and Sales, Cost of Goods Sold, and Gross Profit measures for the March 8th and March 31st sales, as well as those for both, representing sales for the entire month of March:

		(a) Sales on 8-Mar	(b) Sales on 31-Mar	Sales for the Month of March
	Sales	$1,050.00	$1,500.00	$2,550.00
less:	Cost of Goods Sold	$690.00	$1,083.08	$1,773.08
equals:	Gross Profit	$360.00	$416.92	$776.92
	Beginning Inventory	$320.00	$230.00	$320.00
plus:	Purchases	$600.00	$1,503.00	$2,103.00
equals:	Available for Sale	$920.00	$1,733.00	$2,423.00
less:	Ending Inventory	$230.00	$649.92	$649.92
equals:	Cost of Goods Sold	$690.00	$1,083.08	$1,773.08

WAVG $320	WAVG $650

Beginning Inventory
Beginning Balance Sheet
(**Point** in Time)

Ending Inventory
Ending Balance Sheet
(**Point** in Time)

Cost of Goods Sold or Cost of Sales
Income Statement
(**Period** of Time)

WAVG $1,773

Notes:

Last-In, First-Out

Last-in, first-out (LIFO) assumes that the costs that flowed into inventory, first, are to be matched to the revenues, first.

Date	Description	Units & Cost	Units & Sales	Inventory
1-Mar	Beginning Inventory	8 at $40 = $320		8 units
3-Mar	Purchased	12 at $50 = $600		20 units
		[average cost of $46.00]		
8-Mar	Sold		15 at $70	5 units
18-Mar	Purchased	18 at $55 = $990		23 units
25-Mar	Purchased	9 at $57 = $513		32 units
		[average cost of $53.22]		
31-Mar	Sold		20 at $75	12 units
	Totals	47 units	35 units	

On March 8, 15 units were sold (see above). Which unit costs was the last-in? Twelve units at $50 each were the last-in (see above and below). On March 31st 20 units were sold (see above and below). Which of the remaining unit costs was the last-in? All 12 of the units purchased for $50 and 3 of the beginning inventory units were sold on March 8th. If we assume that costs flow LIFO, 5 of the 8 units from beginning inventory remain in inventory. Therefore, these 5 plus the 18 units purchased on March 18th and the 9 units purchased on March 25th are available for sale. The costs associated with the 9 units purchased on March 25th and 11 of the units purchased on March 18th are presumed to have been sold (see above and below).

Journal entries for all of the above transactions are summarized, below.

PURCHASES FOR MERCHANDISE INVENTORY
These amounts do not change

3-Mar	Merchandise Inventory	$600	
	Accounts Payable		$600

Sale of last 15 units →
[12 @ $50 & 3 @ $40]

18-Mar	Merchandise Inventory	$990	
	Accounts Payable		$990
25-Mar	Merchandise Inventory	$513	
	Accounts Payable		$513

Sale of last 20 units →
[9 @ $57 & 11 @ $55]

SALES & COST OF GOODS SOLD
Cost of Goods Sold and Merchandise Inventory measures change and/or depend on the ***cost flow assumption***

8-Mar	Accounts Receivable	$1,050	
	Sales		$1,050
	Cost of Goods Sold	$720	
	Merchandise Inventory		$720

31-Mar	Accounts Receivable	$1,500	
	Sales		$1,500
	Cost of Goods Sold	$1,118	
	Merchandise Inventory		$1,118

After these transactions, the Merchandise Inventory account will reflect ending Merchandising Inventory balance of $585 (LIFO), as shown in T-account form, below:

Merchandise Inventory			
Beginning	$320		
Mar. 3	600		
		Mar. 8	$ 720
Subtotal	$250		
Mar. 18	990		
Mar. 25	513		
		Mar. 31	$1,083
Ending	$585		

T-accounts for Sales and Cost of Goods Sold follow:

Cost of Goods Sold			
Mar. 8	$ 720		
Mar. 31	1,118		
Mar.	$1,837		

Sales			
		Mar. 8	$1,050
		Mar. 31	1,500
		Mar.	$2,550

The following are the computations and Sales, Cost of Goods Sold, and Gross Profit measures for the March 8th and March 31st sales, as well as those for both, representing sales for the entire month of March:

		(a) Sales on 8-Mar	(b) Sales on 31-Mar	Sales for the Month of March
	Sales	$1,050.00	$1,500.00	$2,550.00
less:	Cost of Goods Sold	$720.00	$1,118.00	$1,838.00
equals:	Gross Profit	$330.00	$382.00	$712.00
	Beginning Inventory	$320.00	$200.00	$320.00
plus:	Purchases	$600.00	$1,503.00	$2,103.00
equals:	Available for Sale	$920.00	$1,703.00	$2,423.00
less:	Ending Inventory	$200.00	$585.00	$585.00
equals:	Cost of Goods Sold	$720.00	$1,118.00	$1,838.00

LIFO $320	LIFO $585

Beginning Inventory
Beginning Balance Sheet
(**Point** in Time)

Ending Inventory
Ending Balance Sheet
(**Point** in Time)

Cost of Goods Sold or Cost of Sales
Income Statement
(**Period** of Time)

LIFO $1,838

Notes:

Summarizing Journal Entries for the Basic Methods of Cost Flow Assumptions
Recall that there are 4 basic inventory techniques or cost flow assumptions: (1) specific identification, (2) first-in, first-out (FIFO), (3) weighted-average (WAVG), (4) last-in, first-out (LIFO), and

1. **Specific Identification** journal entries follow:

8-Mar	Cost of Goods Sold	$?	
	Merchandise Inventory		$?
31-Mar	Cost of Goods Sold	$?	
	Merchandise Inventory		$?

2. **First-In, First-Out (FIFO)** journal entries follow:

8-Mar	Cost of Goods Sold	$670	
	Merchandise Inventory		$670
31-Mar	Cost of Goods Sold	$1,075	
	Merchandise Inventory		$1,075

3. **Weighted-Average or Moving Weighted-Average (WAVG)** journal entries follow:

8-Mar	Cost of Goods Sold	$690	
	Merchandise Inventory		$690
31-Mar	Cost of Goods Sold	$1,083	
	Merchandise Inventory		$1,083

4. **Last-In, First-Out (LIFO)** journal entries follow:

8-Mar	Cost of Goods Sold	$720	
	Merchandise Inventory		$720
31-Mar	Cost of Goods Sold	$1,118	
	Merchandise Inventory		$1,118

Summarizing Financial Statement Effects for the Basic Methods of Cost Flow Assumptions

Recall the very simple example used at the beginning of this chapter, as follows:

		Units	Unit Cost	FIFO	WAVG	LIFO
	Beginning Inventory	5	$1.10	$5.50	$5.50	$5.50
add:	Purchases	5	$1.20	$6.00	$6.00	$6.00
equals:	Available	10		$11.50	$11.50	$11.50
less:	Ending Inventory	5		$6.00	$5.75	$5.50
equals:	Cost of Goods Sold	5		$5.50	$5.75	$6.00

Below are a series of tables, more fully developed, using the same basic framework, but for the example used in the body of the chapter. The original fact pattern is retained:

Date	Description	Units & Cost	Units & Sales	Inventory
1-Mar	Beginning Inventory	8 at $40 = $320		8 units
3-Mar	Purchased	12 at $50 = $600		20 units
8-Mar	Sold		15 at $70	5 units
18-Mar	Purchased	18 at $55 = $990		23 units
25-Mar	Purchased	9 at $57 = $513		32 units
31-Mar	Sold		20 at $75	12 units
	Totals	47 units	35 units	

		Units	Unit Cost	FIFO	WAVG	LIFO
	Beginning Inventory	8	$40	$320	$320	$320
add:	Purchases	39	varies	$2,103	$2,103	$2,103
equals:	Available	47		$2,423	$2,423	$2,423
less:	Ending Inventory	12		$687	$650	$585
equals:	Cost of Goods Sold	35		$1,745	$1,773	$1,838

Revenues or sales are the same, regardless of the inventory cost flow assumption used, as they were throughout the examples used in the body of the chapter. In the table that follows, operating expenses are assumed at $300. These, also, would be the same, regardless of the method of inventory valuation. We will ignore income taxes, but focus on the typical pattern for income before tax.

		FIFO	WAVG	LIFO
	Sales	$2,550	$2,550	$2,550
less:	Cost of goods sold	$1,745	$1,773	$1,838
equals:	Gross profit	$805	$777	$712
less:	Expenses	$300	$300	$300
equals:	Income before tax	$505	$477	$412

Generally, income before tax is highest for FIFO, lowest for LIFO, and weighted average (WAVG) is an average of these two extremes.

Balance sheet measures also tend to follow a typical pattern. Again, recall the per unit example used at the beginning of this chapter:

		Units	Unit Cost	FIFO	WAVG	LIFO
	Beginning Inventory	5	$1.10	$5.50	$5.50	$5.50
add:	Purchases	5	$1.20	$6.00	$6.00	$6.00
equals:	Available	10		$11.50	$11.50	$11.50
less:	Ending Inventory	5		$6.00	$5.75	$5.50
equals:	Cost of Goods Sold	5		$5.50	$5.75	$6.00

Note that per unit cost of goods sold is highest for LIFO, lowest for FIFO, and weighted average (WAVG) is some measure in between the two extremes. Furthermore, this alternative "cost flow assumption" or "cost allocation" method results in the highest per unit inventory under FIFO, the lowest for LIFO, and weighted average (WAVG) is some measure in between the two extremes.

Similarly, the below example used in the body of the chapter produces a comparable pattern for FIFO, WAVG and FIFO for the balance sheet and income statement measures:

		Units	Unit Cost	FIFO	WAVG	LIFO
	Beginning Inventory	8	$40	$320	$320	$320
add:	Purchases	39	varies	$2,103	$2,103	$2,103
equals:	Available	47		$2,423	$2,423	$2,423
less:	Ending Inventory	12		$687	$650	$585
equals:	Cost of Goods Sold	35		$1,745	$1,773	$1,838

- FIFO tends to allocate the fair value measure to the firm's balance sheet and a lower cost of goods sold to the income statement.
- LIFO tends to allocate a lower than fair value measure to the firm's balance sheet and a higher cost of goods sold to the income statement, matching the most recent, rising cost to the revenue in the income statement.
- Weighted average (WAVG), effectively, splits the difference between the balance sheet and the income statement.

Again, using the example from the body of the chapter:

- FIFO tends to produce the highest gross profit, income before tax and net income.
- LIFO tends to produce the lowest gross profit, income before tax and net income.
- Weighted average (WAVG), again, produces measures in between those produced under the FIFO and LIFO extremes.

		FIFO	WAVG	LIFO
	Sales	$2,550	$2,550	$2,550
less:	Cost of goods sold	$1,745	$1,773	$1,838
equals:	Gross profit	$805	$777	$712
less:	Expenses	$300	$300	$300
equals:	Income before tax	$505	$477	$412

Recall that "Net" Measures are used in the Income Statement
Recall that net measures are used in the income statement:

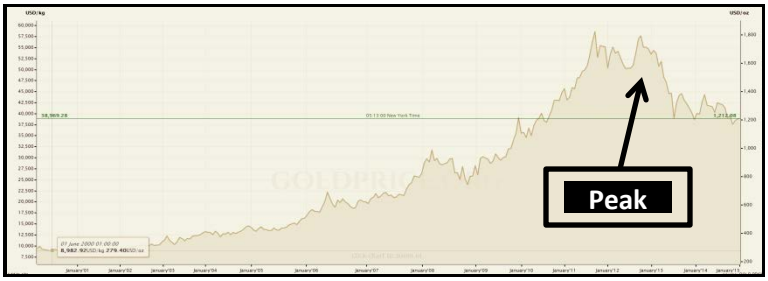
	REVENUES	EXPENSES		
	Gross Sales	Gross Purchases		$XXX
less:	Sales Discounts	Purchase Discounts	$XX	
less:	Sales Returns	Purchase Returns	$XX	
less:	Sales Allowances	Purchase Allowances	$XX	$XX
equals:	Net Sales	Net Purchases		$XX

Notes: _____

Consistency and Comparability
While a firm might choose to use more than 1 inventory valuation methods for different classes of inventory, this is odd, unless they apply an alternative method to some relatively insignificant or immaterial inventory classification. The most important thing to understand is that consistency is necessary. It would not make any sense to use LIFO in the first quarter, FIFO in the second quarter, weighted-average (WAVG) for the third quarter and specific identification for the fourth quarter. Stakeholders (and management) would not be able to evaluate the firm from one quarter to another.

Lower of Cost or Market
The lower of cost or market (LCM) method is applied when the market value of inventory drops below its historical cost. This could be due to obsolescence and/or the availability of comparable replacement inventory at a lower cost. The loss in value is matched to the period in which the decline in utility or market value occurs. It is an application of the principle of conservatism, where you are to run the risk of undervaluing rather than overvaluing this current asset.

An Example
Assume that you are a jeweler and hold gold inventory. The price of gold declines:



You would have to record the decline in your gold inventory value in the period in which it occurs so that the loss is matched to the correct income statement period.

Lower of Cost or Market (LCM) Computation
Lower of cost or market for inventory can be applied (1) to each individual item in inventory, (2) to major classes or categories of inventory, or (3) to the inventory as a whole. It is important to be systematic and rational and methodical in the LCM technique used. It is also important to consistently apply the approach for comparability, particularly in those cases where your firm operates in an industry where valuations fluctuate.

Generally, you debit cost of goods sold and credit the merchandise inventory account for the loss in valuation:

Cost of Goods Sold	$xxx	
Merchandise Inventory		$xxx

A LCM Example

Assume that a firm has 3 classifications of inventory: widgets, didgets and fidgets:

Item	Units	Per unit Cost	Per unit Market	Total Cost	Total Market	Lower of Cost or Market
Widgets	20	$5	$4	$100	$80	$80
Didgets	10	$10	$10	$100	$100	$100
Fidgets	5	$20	$20	$100	$100	$100
TOTALS				$300	$280	$280

The market has declined for widgets, as a new invention, the gadget is being produced at a much lower cost. Consequently, the widgets in the firm's inventory cannot be sold for more than $4 per unit (i.e., decline from $100 to $80 for widget inventory). In this case, the loss to be matched to the period in which the market value decline occurred results in the following journal entry:

Cost of Goods Sold	$20	
Merchandise Inventory		$20

Some firms may prefer to isolate this measure in a separate account, later to be closed to cost of goods sold, as follows:

Cost of Goods Sold - LCM	$20	
Merchandise Inventory		$20

How Are Financial Statements Affected by Inventory Errors

A two-period model will be used to illustrate how errors in inventory counts for period 1 affect period 1 and period 2 balance sheet and income statement measures. Excel, with formulas, was used to generate alternative based on all possible directional errors, at $10 each, for beginning and ending inventory during period 1. All are labelled inside of the box. Begin with the "correct" measures:

	Correct	Year 1	Year 2
	Beginning Inventory	$100	$150
add:	Purchases of Inventory	$200	$210
equals:	Inventory Available for Sale during the Period	$300	$360
less:	Ending Inventory	$150	$190
equals:	Cost of Goods Sold	$150	$170

Recall that ending inventory for year 1 is the same as beginning inventory for year 2 at $150. In the below case, assume that an error occurred and beginning inventory for year 1 was understated by $10:

	Assume Year 1 Beginning Inventory understated	Year 1	Year 2
	Beginning Inventory	$90	$150
add:	Purchases of Inventory	$200	$210
equals:	Inventory Available for Sale during the Period	$290	$360
less:	Ending Inventory	$150	$190
equals:	Cost of Goods Sold	$140	$170

Focus on and compare measures for both (1) ending inventory and (2) cost of goods sold for both years 1 and 2.

Still focused on differences from the "correct" measures, assume, now, that an error occurred and beginning inventory for year 1 was overstated by $10:

	Assume Year 1 Beginning Inventory overstated	Year 1	Year 2
	Beginning Inventory	$110	$150
add:	Purchases of Inventory	$200	$210
equals:	Inventory Available for Sale during the Period	$310	$360
less:	Ending Inventory	$150	$190
equals:	Cost of Goods Sold	$160	$170

Again, focus on and compare measures for both (1) ending inventory and (2) cost of goods sold for both years 1 and 2.

For the above two examples we focused on beginning inventory measures and errors. For the two examples that follow, we will focus on ending inventory measures and errors.

First, assume that the physical count of ending inventory for year 1 was incorrectly understated. Again, track differences between incorrect and correct balance sheet and income statement measures.

	Assume Year 1 Ending Inventory understated	Year 1	Year 2
	Beginning Inventory	$100	$140
add:	Purchases of Inventory	$200	$210
equals:	Inventory Available for Sale during the Period	$300	$350
less:	Ending Inventory	$140	$190
equals:	Cost of Goods Sold	$160	$160

Finally, assume that the physical count of ending inventory for year 1 was incorrectly overstated. As you have done in all of the above cases, track differences between incorrect and correct balance sheet (ending inventory) and income statement (cost of goods sold) measures.

	Assume Year 1 Ending Inventory overstated	Year 1	Year 2
	Beginning Inventory	$100	$160
add:	Purchases of Inventory	$200	$210
equals:	Inventory Available for Sale during the Period	$300	$370
less:	Ending Inventory	$160	$190
equals:	Cost of Goods Sold	$140	$180

If you overstate cost of goods sold, you understate gross margin, net income before tax and net income and earnings per share. If you understate cost of goods sold, you overstate gross margin, net income before tax and net income and earnings per share.

Appendix A

Inventory Turnover

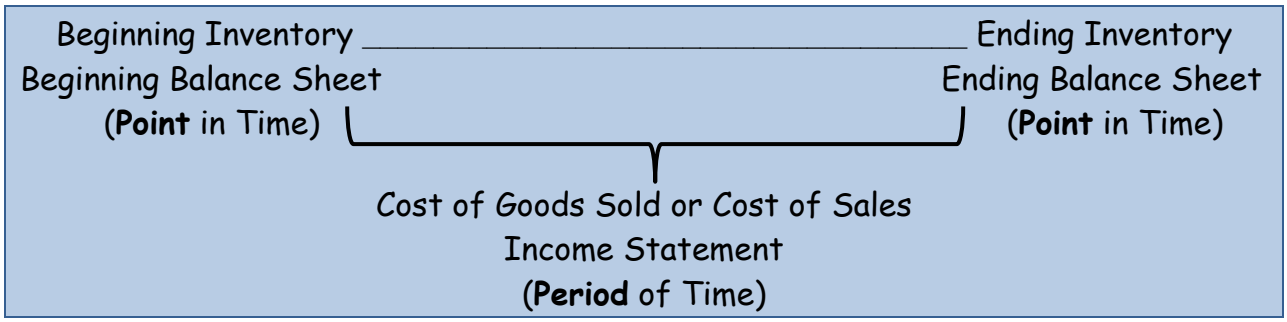
Inventory must be sold for cash or sold on account or on credit. One indicator of superior management is the speed with which the inventory "turns."

Keep in mind, if inventory is stored, the facility and receiving and maintenance of this assets costs money. If you can turn your inventory over very quickly, you require less storage, incur lower costs, and can proceed to collect cash on the sale faster.

There are industry averages for all financial ratios, including inventory turnover, by industry. These comparisons allow us to evaluate management's performance with respect to inventory and inventory management. The basic formula for the computation of inventory turnover follows:

Inventory turnover = Cost of goods sold ÷ Average inventory

As is the case with all turnover measures, the numerator comes from the income statement, covering a <u>period</u> of time, and the denominator comes from both beginning and ending balance sheets or <u>point</u> in time measures, or the average of the beginning of the period and the end of the period.



Appendix B

Days' Sales in Inventory

Days' sales in inventory, like inventory turnover, provide measures by which management performance can be compared within an industry. Too much suggests higher storage costs. Too little suggests the risk of a "stock-out." It can be computed based on a 30-day month or using 365 days per year, as follows:

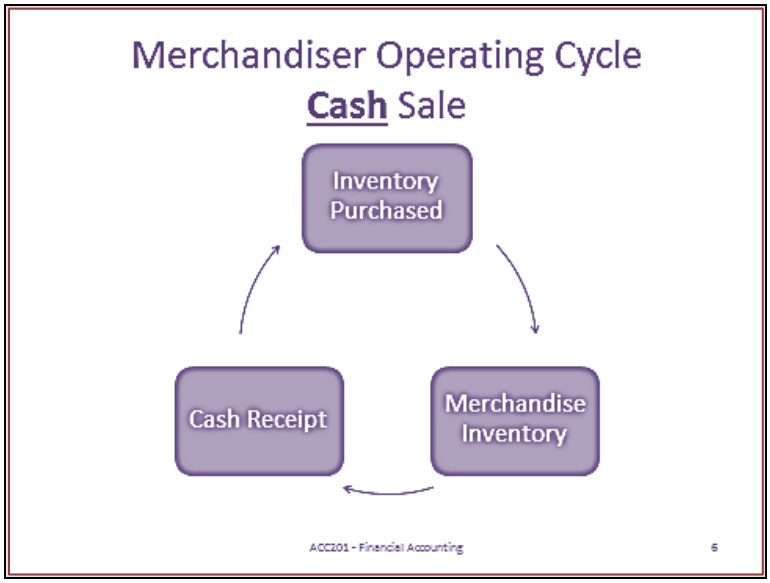
Days' sales in inventory = [Ending inventory ÷ Cost of goods sold] x 365

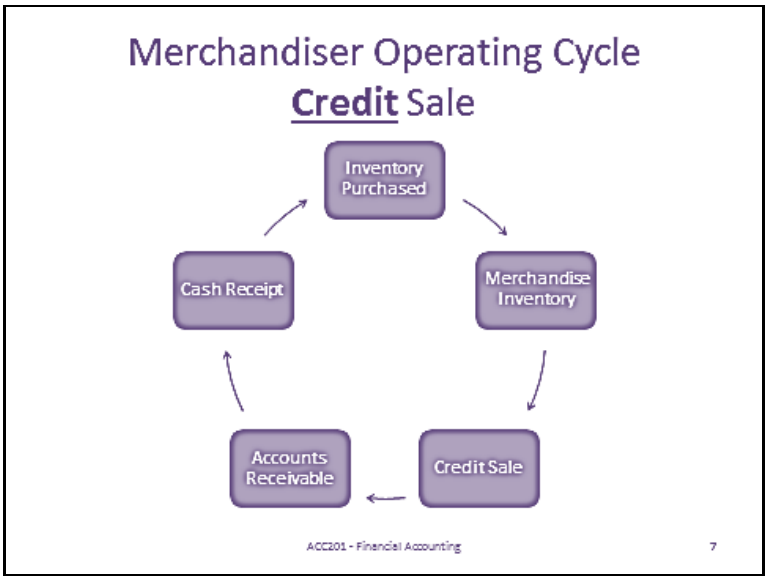
or

Days' sales in inventory = [Ending inventory ÷ Cost of goods sold] x 360

Unlike inventory turnover, days' sales in inventory focus only on ending inventory. We want to know how many days it will take to convert ending inventory to cash.

Recall that inventory must be sold, for cash or on account (credit). If sold on account, the accounts receivable must be collected.





Increases in ending inventory increases the number of Days' Sales in Inventory and is viewed less than favorably.

Appendix C

A Periodic System of Inventory Costing

A Single Fact Pattern – A Periodic Inventory System

The below will be used to illustrate the impact of an inventory cost flow assumption on a firm's selected balance sheet and income statement measures for the month of March. Assume that the firm uses the periodic inventory system. Therefore, merchandise inventory is periodically updated to reflect merchandise inventory purchases and retail sales.

Date	Description	Units & Cost	Units & Sales	Inventory
1-Mar	Beginning Inventory	8 at $40 = $320		8 units
3-Mar	Purchased	12 at $50 = $600		20 units
8-Mar	Sold		15 at $70	5 units
18-Mar	Purchased	18 at $55 = $990		23 units
25-Mar	Purchased	9 at $57 = $513		32 units
31-Mar	Sold		20 at $75	12 units
	Totals	47 units	35 units	

Focusing, first, on the journal entries that do not change, regardless of whether you use (1) specific identification, (2) first in, first out (FIFO), (3) weighted average (WAVG), or (4) last in, first out (LIFO) inventory methods. For purchases:

3-Mar	Purchases (12 units)	$600	
	Accounts payable		$600
18-Mar	Purchases (18 units)	$990	
	Accounts payable		$990
25-Mar	Purchases (9 units)	$513	
	Accounts payable		$513

For sales:

8-Mar	Accounts receivable	$1,050	
	Sales (15 units)		$1,050
31-Mar	Accounts receivable	$1,500	
	Sales (20 units)		$1,500

For cost of goods sold, recall that n=35 units (15 plus 20 on 8-Mar and 31-Mar, respectively) were sold during the period, and there were n=8 units in beginning inventory, so N=47 units were available for sale during the period, as follows:

Date	Description	Units & Cost
1-Mar	Beginning Inventory	8 at $40 = $320
3-Mar	Purchased	12 at $50 = $600
18-Mar	Purchased	18 at $55 = $990
25-Mar	Purchased	9 at $57 = $513
	Totals	47 units

Of the N=35 units sold during the period, management has determined that n=4 units were from beginning inventory, n=10 units were from the 3-Mar purchase, n=15 units were from the 18-Mar purchase and n=6 units were from the 25-Mar purchase, as follows:

Date	Units Sold	Cost per Unit	Total Cost
1-Mar	4	$40	$160
3-Mar	10	$50	$500
18-Mar	15	$55	$825
25-Mar	6	$57	$342
	35		1827

The **Specific Identification**, **First-In, First-Out (FIFO)**, **Weighted-Average or Moving Weighted-Average (WAVG)**, and **Last-In, First-Out (LIFO)** computations of ending inventory, cost of goods sold, and gross margins follows:

		Units	Specific Identification	FIFO	WAVG	LIFO
	Available	47	$2,423	$2,423	$2,423	$2,423
less:	Ending Inventory	12	$596	$678	$619	$520
equals:	Cost of Goods Sold	35	$1,827	$1,745	$1,804	$1,903

		Units	Specific Identification	FIFO	WAVG	LIFO
	Sales	35	$2,650	$2,650	$2,650	$2,650
less:	Cost of goods sold	35	$1,827	$1,745	$1,804	$1,903
equals:	Gross profit	-0-	$823	$905	$846	$747

The **Specific Identification** journal entry follows:

31-Mar	Merchandise inventory (ending)	$596	
	Income summary		$276
	Merchandise inventory (beginning)		$320

The **First-In, First-Out (FIFO)** journal entry follows:

31-Mar	Merchandise inventory (ending)	$678	
	Income summary		$358
	Merchandise inventory (beginning)		$320

The **Weighted-Average or Moving Weighted-Average (WAVG)** journal entry follows:

31-Mar	Merchandise inventory (ending)	$619	
	Income summary		$299
	Merchandise inventory (beginning)		$320

The **Last-In, First-Out (LIFO)** journal entry follows:

31-Mar	Merchandise inventory (ending)	$520	
	Income summary		$200
	Merchandise inventory (beginning)		$320

Note that the income summary measure is a “plug.”

Appendix D

Inventory Estimation Methods

These inventory valuation methods are more likely to be addressed in an intermediate financial accounting course, but are introduced below:

Retail Inventory Methods

Retail inventory methods are used to reduce the cost associated with making frequent, manual counts of physical inventory, estimating the allocation of goods available for sale between the balance sheet ending inventory measure and the income statement cost of goods sold measure. They use the "selling price" of the inventory, as follows:

	Inventory Available for Sale during the Period at Retail	$XX
less:	Ending Inventory at Retail	$XX
equals:	Cost of Goods Sold in terms of Net Sales at Retail	$XX

Alternatively:

	Inventory Available for Sale during the Period at Retail	$XX
less:	Cost of Goods Sold in terms of Net Sales at Retail	$XX
equals:	Ending Inventory at Retail	$XX

The firm must compute a cost-to-retail ratio, perhaps, separately, for several classifications of inventory, as follows:

Cost-to-Retail Ratio = Cost ÷ Retail

By multiplying the cost-to-retail ratio by the ending inventory, at retail, the firm computes an estimated ending inventory cost measure, as follows:

Ending Inventory at Cost = Ending Inventory at Retail X Cost-to-Retail Ratio

Gross Profit Method

The gross profit method is often necessary when inventory is lost, destroyed, or stolen, perhaps for insurance recovery purposes, as follows:

Estimated Cost of Goods Sold = Net Sales at Retail X [1.0 – Gross Profit Ratio]

Estimated Ending Inventory at Cost = Goods Available for Sale at Cost – Estimated Cost of Goods Sold

Chapter 6[1]

Internal Control & Accounting for Cash

Learning Objectives

- Define internal control and identify its purpose and principles.
- Provide some background information on the Sarbanes-Oxley Act (SOX).
- List some basic limitations of internal control.
- List which 3 basic duties should be segregated.
- Apply internal control to cash receipts and cash disbursements.
- Explain and illustrate your knowledge of how petty cash fund transactions are accounted for.
- Prepare the bank reconciliation.
- Define cash and cash equivalents and explain how these items are reported and to whom.
- Compute the days' sales uncollected ratio and explain how it is used to assess liquidity.
- Describe the documentation used to verify and control cash disbursements.
- Apply the net method to control purchase discounts.

[1] Acknowledgement: An earlier version of this chapter was provided to all accounting faculty on January 30, 2015, for review notes, comments, and recommendations for improvement. A special thanks to Professor Kreag Danvers, from Penn State – Behrend, for his February 2015 comments and recommendations on an early draft. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

Professor Walt Cressler, a West Chester University Professor of Library Services, is the administrator of Digital Commons @ West Chester University, the digital platform where this extraordinary free accounting textbook has been published. Digital Commons @ West Chester University is an online showcase of research and creative works produced by the WCU community. It is one of Professor Cressler's more recent projects, having begun in the fall of 2013.

Walt first came to campus as a temporary instructor in the Geology & Astronomy Department in the fall of 1999. He managed to find a more permanent place in the West Chester University community in the fall of 2001, when he became the Science Librarian. He had successfully parlayed his background as a public middle school librarian along with his recent Ph.D. in Geology and experience teaching at WCU in securing the job.

It is the perfect niche for Professor Cressler. In addition to assisting students and faculty on their quests for knowledge on a day-to-day basis, he has done his own research in both paleo botany and on the history of the local watersheds. His interests are quite far-ranging, and working with Digital Commons @ West Chester University provides Walt an opportunity to collaborate, if even in a small way, with scholars in the full range of disciplines. He never expected to get mentioned in an introductory financial accounting textbook.

- B.A. Biology Dartmouth College
- M.S. Information Studies Drexel University
- M.Ed. Elementary Education Widener University
- Ph.D. Earth & Environmental Sciences University of Pennsylvania

U.S. Securities and Exchange Commission

SEC Charges Arizona-Based Software Company for Inadequate Internal Accounting Controls over Its Financial Reporting FOR IMMEDIATE RELEASE 2014-216 *Washington D.C., Sept. 25, 2014 —*

The Securities and Exchange Commission today sanctioned a Scottsdale, Ariz.-based software company for having ***inadequate internal accounting controls*** (emphasis added) over its financial reporting, which resulted in misstated revenues in public filings.

An SEC investigation found that JDA Software Group Inc. failed to properly recognize and report revenue from certain software license agreements it sold to customers because its ***internal accounting controls failed*** (emphasis added) to consider information needed for determining a critical component of revenue recognition for software companies. If companies are unable to demonstrate this component – known as vendor specific objective evidence of fair value (VSOE) – when determining the fair value of certain services related to a software license agreement, then they cannot immediately recognize the entire revenue from that agreement. With proper internal controls that appropriately considered VSOE, JDA would have recognized revenue from certain sales ratably over the term of a services agreement.

JDA agreed to settle the SEC's charges by paying a $750,000 penalty.

"Companies must have ***adequate internal accounting controls*** (emphasis added) designed to comply with their financial reporting obligations to the public," said Michael Maloney, Chief Accountant of the SEC's Enforcement Division. "VSOE is a critically important component in determining the timing in which software companies recognize revenue, and JDA's internal accounting controls surrounding VSOE were inadequate in various ways."

According to the SEC's order instituting a settled administrative proceeding, JDA's ***internal accounting controls*** (emphasis added) surrounding VSOE were inadequate in several ways. For example, JDA lacked adequate revenue recognition policies and procedures and failed to identify all service-related contracts needed for VSOE testing to determine the fair value of certain services. Moreover, JDA ***did not have sufficient internal accounting controls*** (emphasis added) to determine whether a software license agreement and related services contract were linked to each other. As a result of these internal control failures, some of JDA's financial statements for 2008, 2009, 2010, and 2011 were materially misstated. JDA restated those financial statements in August 2012, reporting that it had overstated its revenue for fiscal year 2010 by 4 percent and overstated EBITDA by approximately 18 percent. In connection with the restatement, JDA identified ***control deficiencies that constituted a previously undisclosed material weakness in its internal control*** (emphasis) over financial reporting related to revenue recognition.

The SEC's order finds that JDA violated the reporting, books and records, and internal controls provisions of the federal securities laws, namely Sections 13(a), 13(b)(2)(A), and 13(b)(2)(B) of the Securities Exchange Act of 1934 and Rules 12b-20, 13a-1, 13a-11, and 13a-13. In agreeing to settle the charges without admitting or denying the SEC's findings, JDA consented to the SEC's order imposing a $750,000 penalty and requiring the company to cease and desist from committing or causing any violations or any future violations of Sections 13(a), 13(b)(2)(A), and 13(b)(2)(B) of the Exchange Act and Rules 12b-20, 13a-1, 13a-11, and 13a-13.

The SEC's investigation was conducted by Noel Gittens and William Scarborough and supervised by Antonia Chion and Ricky Sachar.

Internal control and its fundamental principles are described in this section. The impact of technology and the limitations of internal control procedures are also discussed. Internal controls, their establishment and maintenance, like anything in a firm or organization comes from the top (i.e., the "tone at the top"). If executives and top management provide support for the strong internal controls, the organization's culture will place great emphasis on it.

Managers and owners may be in control of the entire organization: hiring and managing all employees, negotiating all contracts, and signing all checks. However, most companies cannot maintain this close personal attention and must, instead, delegate certain responsibilities. An internal control system is comprised of policies and procedures managers use to:

1. Protect assets
2. Ensure reliable accounting
3. Promote efficient operations
4. Urge compliance with company policies

A properly designed system of internal control will make it possible for managers and owners to prevent avoidable losses. There are no guarantees, but the firm's risk of loss through *error* (an unintentional mistake) or *irregularity* (fraud) can be minimized.

Sarbanes-Oxley Act (SOX)

The Sarbanes-Oxley Act (SOX) was passed into law in 2002, following the Enron and WorldCom audit or market failures.[2] It requires the managers and auditors of companies publicly traded on exchanges (NYSE, AMEX and NASDAQ) to document and certify systems of internal control. Some specific requirements follow:

- Auditors must evaluate and report on internal controls (ICs).
- Auditors are restricted with respect to consulting services they might provide to an audit client.
- Audit leadership must rotate, where an audit leader can serve no more than seven years without a two year break.
- Auditor work is overseen by the *Public Company Accounting Oversight Board* (*PCAOB*).
- Prison sentences of up to 25 years and severe fines are imposed for violations.

SOX increased compliance costs for publicly traded firms. Section 404 requires management documentation and assessment of IC effectiveness to the extent that these processes impact financial reporting. Auditors must provide an opinion on management's documentation and assessment.

[2] This raised the cost of audits and increased demand for auditors, so accountants, jokingly, referred to this as "the accountants full employment act."

Principles of Internal Control
Internal control principles and systems are designed to reduce the incidence of *errors* and *irregularities*. Errors are operationally defined as and result from honest mistakes. Irregularities are operationally defined as and result from intentional deceit or fraud. Internal control are designed to

1. Establish fixed responsibilities
2. Maintain adequate records
3. Insure and protect assets and bond key employees
4. Provide for the separation of recordkeeping and custody of assets functions
5. Provide for the division of responsibilities for related transactions
6. Apply technological controls
7. Provide for regular and independent reviews

1-Establish fixed responsibilities
Establishing fixed responsibilities to a single individual for a specific task provides for linkage between performance and responsibility. For example, if two individuals share the same cash register and there is a cash shortage, accountability would be difficult to identify or assign. You have probably observed retail organizations when changing shifts swap cash drawers. Errors and irregularities are isolated and fixed with respect to responsibility in this fashion.

2-Maintain adequate records
Maintenance of adequate records helps to protect assets and ensure employee performance with respect to prescribed procedures. Managers use the records and the information they are designed to produce to monitor activities and make decisions. Detailed records also reduce the potential for lost or stolen assets. Charts of accounts and preprinted, pre-numbered and controlled forms are part of a good system of internal control. For example, a missing, pre-numbered sales slip, issued to a specific employee, can be used to identify an error or irregularity.

3-Insure and protect assets and bond key employees
Asset protection is facilitated through bonding. A bond is an insurance policy, protecting the organization from losses caused by an employee. Bonding employees is thought to reduce the probability and incidence of loss, since bonded employees are advised that an independent insurer will be involved in the investigation of an irregularity.

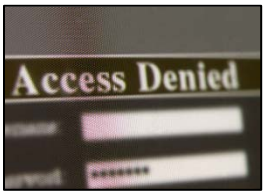
4-Provide for the separation of recordkeeping and custody of assets functions
The separation of recordkeeping and custody of assets functions provides for and facilitates the timely identification of errors and produces an administrative environment that is more likely to require collusion to facilitate the ongoing failure to detect irregularities. Each employee is aware of the checks and balances in the system. This reduces the risk of both errors and irregularities.

5-Provide for the division of responsibilities for related transactions
The division of responsibilities for related transactions provides assurance that errors and irregularities will be detected in a timely fashion. This does not require a duplication of work effort, but separates duties and responsibilities. Examples include the separation of recordkeeping and authorization for purchase orders, the receipt of merchandise, and vendor payment. A single individual should not perform all of these tasks, as this increases the risk of errors and irregularities.

6-Apply technological controls
Cash registers, time clocks, passwords and personal identification codes represent examples of technological controls and innovations that identify and fix responsibility. Fixed responsibilities improve the isolation and early detection of errors and irregularities.

7-Provide for regular and independent reviews
Periodic and independent reviews of IC ensure that procedures are followed and updated, as personnel change and technological advances alter the sequence and composition of tasks being performed. If the firm maintains an internal audit staff, these reviews can be performed internally, and should evaluate both efficiency and effectiveness. External auditors may also be used to verify the work of the internal audit staff or perform these reviews.

Technology and Internal Control
Internal control (IC) is essential for both manual and automated accounting and administrative systems. Technology accelerates the pace of access to data and information, improving the managers' ability to monitor and control business activities and the decision-making process.

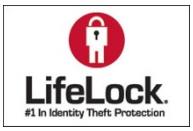


Reduced processing errors can be expected when using technologically advanced systems. If the software is functioning properly and the data is being entered correctly, errors of any type are nearly eliminated. Ongoing monitoring of all types of systems is important and necessary.

More extensive testing of records and transactions unlike manual systems, when all data is stored and easily and rapidly accessed, auditors are able to produce a variety of test of very large samples or even the entire population of data, prior transactions, and data resulting from the transactions.

Limited evidence of processing may be explained in cases where computer programs examine the data, to be led by those competent to establish such controls through access from passwords and alternative forms of identification. In such cases, internal controls are dependent more on the design and operation of information systems and less on the analysis of documents that might no longer need to be produced.

E-commerce creates at least 3 additional risks: theft of (1) credit card numbers, (2) computer files, and (3) impersonation or identity theft.



Limitations of internal control

Internal control policies and procedures have limitations. Frequently, even the strongest internal controls can be circumvented through collusion or the collaboration of 2 or more persons. Furthermore, the implementation of internal controls systems is costly, so cost-benefit decisions must be made. The cost of a system of internal controls should not exceed the benefit.

Internal controls fail when *errors* or *irregularities* occur. Errors are unintentional mistakes. The so-called triple threat of fraud includes (1) opportunity, (2) pressure, and (3) rationalization.

Controlling Cash

Firms must establish accounting and administrative systems of internal control to protect assets. Assets include cash, receivables, inventory and property, plant and equipment. Of course, the most liquid and vulnerable asset to be protected is cash.

To maintain appropriate internal controls over cash, the firm must provide for the separation (or segregation) of duties involving cash. Duties that should be conducted by different employees include:

1. Custody of cash (and other assets);
2. Record keeping involving cash (and other assets); and
3. Authorization of transactions involving cash (and other assets).

Furthermore, cash receipts should be deposited in a timely manner, to maximize cash flow for the firm.

Cash and Cash Equivalents

Cash based transactions are recorded in cash receipts and cash disbursement journals.

Cash and cash equivalents must be available to pay obligations and provide sufficient liquid assets for daily operations. Well-designed accounting and administrative systems, pro forma financial statements, cash budget forecasts, and strong internal controls systems assure the availability of sufficient cash for day-to-day operations. Cash equivalents include short-term investments in U.S. Treasury bills and money market funds.

Managing Cash

Effective cash management focuses on maximizing net cash inflows, by collecting and depositing cash inflows from receivables as quickly as possible, and delaying cash outflows required to pay liabilities until the due date. Inventories are costly to store and manage, so systems of *just-in-time* inventory are desirable to minimize inventory and

related storage and maintenance costs. Fixed asset utilization should be maximized and surplus or excess capacity should be sold or leased to others to generate revenues and cash inflows, or simply be avoided in the first place. Surplus cash should be invested in relatively liquid, interest- or dividend-bearing cash equivalent instruments, if needed in the near-term, or productive or cost-reducing assets, or applied to debt reduction, if not required for short-term operations.

Bank Overdrafts

Bank overdrafts suggests that a firm is "floating" or "kiting" checks (e.g., writing checks on a checking account with insufficient funds, and anticipating a delay in check clearing that will prevent a check from "bouncing" and an insufficient funds notification and "not sufficient funds" charge from the financial institution from which the account is drawn). While a balance sheet might, otherwise, net all cash and cash equivalents for presentation on the face of a firm's balance sheet, any bank overdrafts warrant "grossing up" and separate liability disclosure, if significant or material in dollar amount. The partial balance sheet below illustrates:

Assets	
Cash and cash equivalents	$xxx
Liabilities	
Bank overdraft	$xx

Cash Receipts and Cash Disbursements Journals

As indicated above, cash receipts and cash disbursements journals are the "original books of entry" for transactions involving cash. However, cash receipts and cash disbursement journals involve the use of spreadsheets with quite a few columns. This would consume quite a bit of pages in a textbook. For this reason, we teach you and test your knowledge of the "mechanics" of double-entry accounting using the less voluminous general journal format. The general journal format illustrates the final destination of the debits and the credits in the general ledger.

Examples of cash receipts and cash disbursements journals are provided in Appendix A and Appendix B, respectively.

Controlling cash receipts

Cash receipts must be recorded and deposited in a timely manner. Two important types of cash receipts requiring internal control include cash received from over-the-counter transactions and by mail.

Cash receipts: Over-the-Counter

Over-the-counter cash receipts must be recorded at the cash register at the time of sale. Customers should be able to read the amount registered, as this represents an additional internal control.

Custody of cash, an asset, must be separated from record-keeping. Those with access to cash should not have access to the cash register tape or record-keeping mechanisms.

At the end of each shift, the sales clerk should (1) count the cash, (2) generate a record of the amount received, and (3) turn in the cash and record over to the cashier. The cashier has access to the cash, but not records or cash register tapes. A third individual, a supervisor compares the cash amount reported to record the cash sale. The record represents the source document for the journal entry recording over-the-counter cash receipts. The sales clerk and the cashier have access to cash, but not record-keeping. The risk of error or irregularity is minimized, since the latter would require collusion.

Cash Over and Short

Honest errors occur, so transactions involving cash may be over or short. These overages and shortages are isolated to each clerk and their shift. The cash over and short account is an income statement account.

Assume, for example, that $500 should have been deposited, but $501 was the actual deposit. The following journal entry would be made to record the cash sales for the shift or day:

Cash	$501	
Cash Over and Short		$1
Sales		$500

Assume the reverse case. Sales were $500, but only $499 in cash was provided:

Cash	$499	
Cash Over and Short	$1	
Sales		$500

These cash shortages and overages should be immaterial and insignificant in dollar amount. They are often reported as a general and administrative expense.

Cash Receipts: Received by Mail

Cash received in the mail should be assigned to two persons. This reduces the risk of theft, which would require collusion.

Those opening the mail generate a list of money received. The list includes (1) sender's name, (2) amount, and (3) a reason for the receipt. A copy is sent to the cashier and a copy is sent to the record-keeper. One copy is retained. The cashier makes the deposit and the record-keeper records amounts into the accounting records.

Bank records represent external evidence of deposits, which should be matched to the internal documents described, above.

Controlling cash disbursements
Cash disbursements must be controlled to avoid errors or irregularities with respect to payments. All expenditures must be made by check. Relatively immaterial or insignificant amounts may be paid from petty cash. Voucher and petty cash systems produce relatively strong systems for internal control.

The Voucher System
A voucher system establishes procedures for (1) verifying, approving, and recording obligations for cash payment, and (2) issuing checks for verified, approved, and recorded obligations.

A voucher system permits only approved departments and individuals to incur legitimate obligations, where the type of obligation is matched to the appropriate department or individual. For example, only the purchasing department in a large retail store can authorize the purchase of merchandise inventory. Procedures and responsibilities for purchase requests, purchasing, receiving, and payment are separated (or segregated), and all related documents, representing an audit trail, are accumulated in a voucher (an internal document or file).

Appendix C elaborates on source documentation and internal controls.

Petty Cash

Many firms have a need to make very modest cash payments in their day-to-day operations. It might be inefficient for these firms to write checks to reimburse an employee for a few dollars or for gasoline or for occasional out-of-pocket purchases. To avoid writing checks for each and every one of these very small and intermittent expenses, a firm might establish a petty cash fund. These funds are usually insignificant or immaterial, relative to the firm's other cash accounts. The first step is to establish the fund and a custodian. The below journal entry illustrates how the petty cash fund for $100 might be established. A check for $100 is cashed, advancing cash, which is given to the fund custodian for very small, out-of-pocket expenses.

Petty Cash	$100	
Cash		$100
To establish petty cash fund.		

At any point in time, the cash or receipts in the custodian's care will equal $100.

For example, if an employee is sent to the store to pick up some supplies, the employee is (1) given $20, (2) signs a slip of paper acknowledging receipt of the $20, (3) returns with the receipt and change, and (4) the receipt and change replacing the slip of paper, representing the $20 advanced to the employee for the purchase. The slip of paper

signed by the employee for the $20 is destroyed or may be attached to the actual receipt.

This process repeats until the cash in the fund reaches a point where the custodian or the firm's policy requires that the fund must be replenished. It is likely to always be replenished at the end of each month or accounting period, to achieve proper matching of the expense to the period. It is replenished with a check made out to cash, totaling all receipts in the custodians care. At that point in time, a brief summary of the receipts is generated and an additional check is written to restore the petty cash fund to $100 in cash.

The below general journal entry illustrates the restoration of a petty cash fund to the desired $100 cash balance where $5.00 was given to an employee for personal vehicle use and gasoline, $20.00 was spent on US postage stamps, $5.75 was spent on coffee for the office, $13.50 was spent for paper for the office copier, when paper supplies ran low between regular shipments, and $25.00 was spent on employees for pizza, when a few had to work late one evening:

Fuel	$5.00	
Office Supplies	$39.25	
Meals and Entertainment	$25.00	
Cash		$69.25
To replenish petty cash fund.		

The check for $69.25 would be cashed and the cash exchanged for the receipts and the summary sheet or worksheet. While the meals and entertainment expense might also be considered office supplies, the actual classifications used will depend on the firm's chart of accounts and internal policy. For example, some of these cash expenses might appropriately be classified as "miscellaneous" expenses.

If reimbursements are required frequently, the size of the petty cash fund might need to be increased (debit petty cash and credit cash). Alternatively, if the petty cash fund is too large, some of the cash should be deposited into the firm's bank account (debit cash and credit petty cash).

Cash Transfer Accounts

When a firm transfers cash from one of their internal cash or checking accounts to another one of their internal cash or checking accounts, an intermediate "cash transfer" account must be used. If not used, the transfer will be double-counted. Consider the following:

ABC transfers $10,000 from their operating checking account (account #101) to their payroll checking account (account #102) to meet the net pay for the coming pay period.

First, the journal entry is made for the $10,000 transfer out of the

operating checking account, and recorded in the cash disbursements journal:

#102 Cash – Payroll Account	$10,000	
#101 Cash – Operating Account		$10,000
To transfer $10,000 from the operating to the payroll checking account to fund payday.		

Second, the journal entry is made for the $10,000 transfer into the payroll checking account, and recorded in the cash receipts journal:

#102 Cash – Payroll Account	$10,000	
#101 Cash – Operating Account		$10,000
To transfer $10,000 from the operating to the payroll checking account to fund payday.		

Effectively, this transfer between the firm's internal checking accounts ***double-counts*** the cash transfer. The solution is a "cash transfer" account (account #115), used to eliminate the double-counting:

#115 Cash – Transfer Account	$10,000	$10,000
#102 Cash – Payroll Account	$10,000	
#101 Cash – Operating Account		$10,000
To transfer $10,000 from the operating to the payroll checking account to fund payday.		

Bank Statement

Bank statements are provided monthly, either mailed to the account holder in paper form and/or accessed electronically. Technology makes it possible to access banking transactions on-line and in real time and even download transactions by type (cash disbursements v. cash receipts) and/or over specific time periods.

At a minimum, monthly bank statements provide bank records with respect to the

1. beginning of period balance,
2. checks, bank service charges, or other debits (cash disbursements) to the bank account during the period,
3. deposits or other credits (cash receipts) to the bank account during the period, and the
4. ending period balance, as follows:

Beginning balance	$xxx
Add: deposits and other credits	xx
Deduct: checks and other debits	(xx)
Ending balance	$xxx

Do not let the debits and credits listed on the bank statement confuse you. They are so labelled based on the bank's perspective. From the bank's perspective, cash (your asset) that you have in their bank is their liability. This is why, from the bank's perspective, debits and credits appear to be reversed.

Framework for the Basic Bank Reconciliation
Below is the framework for the basic bank reconciliation, with measures included:

	Bank statement balance	$5,000.00		Book balance	$3,950.00
Add:	Deposit(s) in transit	$300.00	**Add:**	Interest earned	$10.00
				Note receivable collection	$350.00
Subtotal:		$5,300.00	**Subtotal:**		$4,310.00
Deduct:	Outstanding check(s)	$1,300.00	**Deduct:**	Check printing charge	$35.00
				NSF check & service fee	$275.00
Equals:	Adjusted bank balance	$4,000.00	**Equals:**	Adjusted bank balance	$4,000.00

Start at the top of each column in the above example. On the left side is a bank statement balance of $5,000. On the right side is a book balance of $3,950. These two sides must be reconciled to the adjusted balance of $4,000 at the bottom of both left and right sides.

Where Did the "Book Balance" Come From?
Below is a T-account representation of (1) the beginning book balance of $600, (2) the cash receipts from the cash receipts journal for the month of $5,000, and (3) the cash disbursements from the cash disbursement journal for the month of $1,650. Note that the end of month book balance is $3,950, which matches with the above from the bank reconciliation:

Cash	
Beginning $600	
Cash Receipts 5,000	
	$1,650 Cash Disbursements
Ending $3,950	

Timing Differences
The bank reconciliation must account for *timing* differences between the bank and the firm for both outstanding checks and outstanding deposit – credits and debits to cash that are in transit. Timing differences are accounted for on the left (bank statement) side of the above bank reconciliation:

- **Outstanding check(s)** are those checks or electronic deductions from the firm's checking account that were written (or authorized) during the month and are recorded in the cash disbursements journal, but do not appear on the bank statement. They have not yet been deposited by the payee or "cleared" the bank. This represents a *timing* difference. The check has been appropriately deducted from the cash account on the firm's books, but is not reflected as a deduction of

cash on the bank statement. These are, typically, checks written toward or at the end of the month. In the above case, a check or checks totaling $1,300 were included in the book balance of $3,950, but did not yet "clear" or show up in arriving at the $5,000 bank statement balance.

- **Deposit(s) in transit** (or **outstanding deposits**) are those deposits or electronic receipts that were made during the month and are recorded in the cash receipts journal, but do not appear on the bank statement. They, also, have not yet "cleared" the bank. This, also, represents a *timing* difference. The deposit has been appropriately added to the cash account on the firm's books, but is not reflected as an increase in cash on the bank statement. These are, typically, deposits made toward or at the end of the month. In the above case, a deposit or deposits totaling $300 were included in your book balance of $3,950, but did not yet "clear" or show up in arriving at the $5,000 bank statement balance.

Deductions and Additions and Errors – Items Not Yet Recorded on the Books
Deductions, additions and corrections for errors are identified from the bank statement. They must be used to adjust the "book balance" of $3,950 (see bank reconciliation).

- **Deductions:** Some deposits might originate from customers with insufficient funds to cover the check (NSF or "not sufficient funds"). In this case, the check will "bounce" and the bank statement will indicate that the payee "kited" the check and the failure of the payee to honor the check they issued. This "bounced" check will show on the bank statement and you will have to adjust your "book balance." In our fact pattern, a check in the amount of $250 "bounced" and the bank charged a $25 fee. Your books do not reflect this, so you will have to make a journal entry to adjust your "book balance." Similarly, you must adjust your books for the $35 check printing charge.
- **Additions:** On occasion, banks will provide services for a fee. For example, your bank might make collections, for a fee, for a note receivable. The receipt of periodic payments for the note receivable will be credited to your bank account, along with any relevant service charge. In this case, the bank administers the collection for a monthly payment of $360 and charges you $10. The net amount credited by the bank to your account is $350.
- **Interest earned:** Interest rates are very low, and many business checking accounts do not pay interest, but this could change. For this reason, we will assume that your checking account balance was high enough to generate $10 in interest income. You did not know the precise amount of interest earned until your received the bank statement, so you must make a journal entry to record the $10 interest income not yet reflected in your "book balance" of $3,950.
- **Errors:** Human error is unavoidable. Both bank errors and your accounting errors on your internal, cash receipts and disbursements journals must be accounted for and corrected on the firm's bank reconciliation.

Journal Entries from the Bank Reconciliation
Below are the journal entries for the "right side" of the bank reconciliation example used. All items not yet record on the books require a journal entry. They appear in the same sequence as that developed in the bank reconciliation, as follows:

Cash	$10	
Interest income		$10

Cash	$350	
Note receivable		$350

Miscellaneous expense	$35	
Cash		$35

Miscellaneous expense	$25	
Accounts receivable	$250	
Cash		$275

Bank Reconciliations – Bank Accounts Represent Strong Internal Control Devices
There is no asset that is more "liquid" than cash. Therefore, internal controls over cash must be very strong, providing for the separation (or segregation) of duties between (1) custody of cash, (2) record keeping for cash disbursements and cash receipts, and (3) the authorization of cash-related transactions. If a firm has weak internal controls over cash receipts and cash disbursements, the entire accounting and administrative system within a firm or organization may require greater scrutiny. In the case of a firm that is publicly traded and/or audited, this would take the form of an expanded audit scope and higher audit fees.

Appendix A

Cash Receipts Journal

All cash receipts are recorded in the cash receipts journal. The cash receipts journal is, therefore, referred to as the "original book of entry" for any transaction involving a cash receipt. Cash receipts are sometimes abbreviated as CRs. The cash receipts journal is summarized or totaled, monthly, and these monthly totals are used to prepare the bank reconciliation, using the related bank statement. A separate cash receipts journal is produced for each checking or savings account.

Below are five examples of cash receipts:
1 – $10,000 cash is deposited to open a new checking account for a new firm. Capital stock is issued.
2 – $1,000 cash is received, in advance, for a job to be completed for a client.
3 – $500 cash is received for a small job completed for a client during the first month of operations.
4 – $5,000 cash is borrowed from the bank, for 1 year. The entire amount is deposited.
5 – $2,000 cash is borrowed from a family member, also for 1 year. The entire amount is deposited.

If these transactions were recorded in general journal form, they would appear, as follows:

General Journal

Account Title	Debit	Credit
1 – Cash	$10,000	
1 - Capital Stock		$10,000
To record initial capitalization and issuance of capital stock.		
2 – Cash	$1,000	
2 – Unearned Revenue		$1,000
To record fees collected in advance of work to be completed.		
3 – Cash	$500	
3 – Revenue		$500
To record revenues earned and cash collected.		
4 – Cash	$5,000	
4 – Loan Payable - Bank		$5,000
To record receipt of a loan from the bank, payable in 1 year.		
5 – Cash	$2,000	
5 – Loan Payable – Uncle Bob		$2,000
To record loan received from Uncle Bob, payable in 1 year.		

If these same transactions were recorded in a cash receipts journal, where each and every transaction must necessarily result in a debit to cash, they would appear, as follows:

	DR	CR	CR	CR	CR	CR
		Capital	Unearned		Loan Payable	Loan Payable
	Cash	Stock	Revenue	Revenue	Bank	Uncle Bob
1	$10,000	$10,000				
2	$1,000		$1,000			
3	$500			$500		
4	$5,000				$5,000	
5	$2,000					$2,000
	$18,500	$10,000	$1,000	$500	$5,000	$2,000

The entire month of cash receipts could be collapsed into a single journal entry, as follows:

Cash	$18,500	
Capital stock		$10,000
Unearned revenue		$1,000
Revenue		$500
Loan payable - bank		$5,000
Loan payable – uncle Bob		$2,000

Appendix B

Cash Disbursements Journal

All cash disbursements are recorded in the cash disbursements journal. The cash disbursements journal is, therefore, referred to as the "original book of entry" for any transaction involving a cash disbursement. Cash disbursements are sometimes abbreviated as CDs. The cash disbursement journal is summarized or totaled, monthly, and these monthly totals are used to prepare the bank reconciliation, using the related bank statement. A separate cash disbursements journal is produced for each checking or savings account.

Below are five examples of cash disbursements:
1 – $2,400 cash is paid for insurance. This represented a $200 prepayment per month for 12 months.
2 – $1,000 cash is paid for rent for the first month of operations.
3 – $200 cash is paid for utilities for the month.
4 – $1,000 cash is paid for salary expense for employees for the month.
5 – $500 cash is paid for an account payable. This liability was incurred earlier in the month.

If these transactions were recorded in general journal form, they would appear, as follows:

General Journal		
Account Title	Debit	Credit
1 – Prepaid Insurance	$2,400	
1 – Cash		$2,400
To record insurance, prepaid for 12 months.		
2 – Rent Expense	$1,000	
2 – Cash		$1,000
To record rent expense paid for the month.		
3 – Utilities Expense	$200	
3 – Cash		$200
To record utilities expense paid for the month.		
4 – Salaries Expense	$1,000	
4 – Cash		$1,000
To record salaries expense paid for the month.		
5 – Accounts Payable	$500	
5 – Cash		$500
To record payment of an account payable.		

If these same transactions were recorded in a cash disbursement journal, where each and every transaction must necessarily result in a credit to cash, they would appear, as follows:

	CR Cash	DR Prepaid Insurance	DR Rent Expense	DR Utilities Expense	DR Salaries Expense	DR Accounts Payable
1	$2,400	$2,400				
2	$1,000		$1,000			
3	$200			$200		
4	$1,000				$1,000	
5	$500					$500
	$5,100	$2,400	$1,000	$200	$1,000	$500

The entire month of cash disbursements could be collapsed into a single journal entry, as follows:

Prepaid insurance	$2,400	
Rent expense	$1,000	
Utilities expense	$200	
Salaries expense	$1,000	
Accounts payable	$500	
Cash		$5,100

Appendix C

Source Documentation

Accountants and auditors possess a high level of expertise in internal control-based source documentation.

Purchase Requisitions are completed and signed by department managers for consideration by the purchasing agent and/or department. It lists the items and quantities needed. A copy is retained by the (1) department requesting the purchase; a second copy is provided to the (2) purchasing agent and/or department; and a third copy is provided to the (3) accounting department. In today's business environment, purchase requisitions may be electronic, avoiding the need for paper and filing cabinets. Purchase requisitions are numbered, to maintain control and identify any lost purchase requisitions or interruptions in sequence.

Purchase Orders are issued by the purchasing agent and/or department when a purchase requested is placed with a supplier or vendor. Internal control is established and maintained, as a single department has the authority and responsibility for all purchases. The purchase order provides details with respect to the price, quantity, dates and other terms associated with the purchase. Again, a copy is retained by the (1) department requesting the purchase; a second copy is provided to the (2) purchasing agent and/or department; and a third copy is provided to the (3) accounting department. In addition, copies are provided to the (4) vendor, (5) receiving department (so they are advised of incoming items), and (6) a copy is retained by the purchasing department. Purchase orders are numbered, to maintain control and identify any lost purchase orders or interruptions in sequence.

Sales Invoice is a term used to characterize an itemized statement prepared by a vendor with the customer's name, price, quantity, and terms of items purchased. A copy is retained by the vendor and a copy is provided to the accounting department, for payment. Sales invoices are numbered, to maintain control and identify any lost sales invoices or interruptions in sequence.

Receiving Reports are produced and maintained by firms with receiving departments. The receiving department checks each shipment for quantity and consistency with the purchase order. Copies of receiving reports are provided to the (1) accounting department, the (2) requesting department, and the (3) purchasing department, while one copy is retaining by the (4) receiving department for its records.

The Invoice Approval Process is triggered by the receipt of the receiving report by the accounting department. The accounting department should have copies of the (1) purchase requisition, (2) purchase order, (3) sales invoice, and (4) receiving report.

Once all of these documents are assembled, payment can be authorized and a check can be processed for delivery to the vendor.

Appendix D

Accounting for Purchase Discounts

There are 2 methods used to account for purchase discounts. The **gross method** records purchases at their gross amount, ignoring any cash discounts. The **net method** records purchases at their net amount, assuming that cash discounts will always be taken by the purchaser. In the latter case, if the discount is not taken, the discount forgone is recorded in a ***discounts lost*** account, designed, specifically, to draw management's attention to these lost opportunities for review.

Both perpetual and periodic inventory systems under both gross and net methods are provided on the following page. In this case, the firm purchased $1,000 in goods with terms of 2/10, n/30. Notice that the amounts do not change, but the account titles do change (between perpetual and periodic systems).

Perpetual inventory illustration

Gross Method		
Inventory purchased		
Merchandise inventory	$1,000	
Accounts payable		$1,000
Discount taken		
Accounts payable	$1,000	
Cash		$980
Merchandise inventory		$20
Discount not taken		
No entry		
Invoice finally paid		
Accounts payable	$1,000	
Cash		$1,000

Net Method		
Inventory purchased		
Merchandise inventory	$980	
Accounts payable		$980
Discount taken		
Accounts payable	$980	
Cash		$980
Discount not taken		
Discounts lost	$20	
Accounts payable		$20
Invoice finally paid		
Accounts payable	$1,000	
Cash		$1,000

Periodic inventory illustration

Gross Method		
Inventory purchased		
Purchases	$1,000	
Accounts payable		$1,000
Discount taken		
Accounts payable	$1,000	
Cash		$980
Purchase discounts		$20
Discount not taken		
No entry		
Invoice finally paid		
Accounts payable	$1,000	
Cash		$1,000

Net Method		
Inventory purchased		
Purchases	$980	
Accounts payable		$980
Discount taken		
Accounts payable	$980	
Cash		$980
Discount not taken		
Discounts lost	$20	
Accounts payable		$20
Invoice finally paid		
Accounts payable	$1,000	
Cash		$1,000

Chapter 7[1]

Accounting for Short-Term or Current Assets & Receivables

Learning Objectives

- Explain how a credit sale and related account receivable and payment in cash are accounted for.
- Illustrate your understanding of the 3 methods used to record accounts receivable.
- Explain which methods are GAAP and which methods are not GAAP and why.
- Describe and apply the direct write-off method.
- Describe and apply the two balance sheet-based allowance methods.
- Describe and apply the income statement-based allowance method.
- Describe a note receivable, compute its value at maturity, and account for both principal and interest components.
- Explain how a dishonored note is accounted for.
- Record dishonored receivables and their restoration and collection under all methods.
- Describe the methods used to convert receivables to cash prior to maturity.
- Compute accounts receivable turnover and explain how it is used to partially assess a firm's financial condition.
- Describe the appropriate use of the sales journal for credit sales.

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Prior to earning his doctorate in accounting, Professor Danvers obtained significant professional experience across manufacturing, healthcare, and Big 4 consulting. He also served as CFO for a project development / investment firm that specialized in real estate investment. Dr. Danvers has worked extensively with financial projections, forecasts, and decision analysis applications.

Professor Danvers (standing) and consultant/friend/former classmate (seated) enjoy an afternoon of boating on the Chain O' Lakes in northeast Illinois, August, 2014.

Dr. Danvers has taught financial and managerial accounting (undergraduate and graduate), intermediate accounting, cost accounting, accounting technology, and accounting information systems. Delivery methods include traditional classroom, online, hybrid, and interactive TV.

Professor Danvers has published in several journals, including *The Journal of the American Taxation Association, Journal of Accounting and Public Policy, Research in Governmental and Nonprofit Accounting, The CPA Journal, Strategic Finance, Journal of Health Care Finance, Oil, Gas & Energy Quarterly, and Journal of Accounting Education*.

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Accounting for Twitter, the Initial Public Offering and Capital Formation
Twitter[2] (NYSE: TWTR) held their IPO on November 7, 2013. More than 117 million shares traded, with an opening price of $45.10, a high of $50.09, a low of $44, and a closing price of $44.90 per share.

As summarized in the below graph, the price per share for Twitter stock rose from its high IPO price of $50.09 per share to more than $59 per share by December 13, 2013, only five weeks after the Twitter IPO.

[2] The website for Twitter is located at https://twitter.com/.

A *receivable* is an amount due from some other individual or entity. Accounts receivable and notes receivable are the most common receivables, but other receivables include rents receivable and interest receivable.

A separate list of customers the firm has extended credit to is maintained, where each customer is assigned an account number (e.g., your MasterCard, VISA, or Home Depot credit cards). Some, of course, do not pay their bills, and these receivables become bad debts, an expense.

Accounts Receivable
Accounts receivable are amounts due from another, arising from a credit sale and, therefore, through the extension of credit. Receivables are classified (as current/short-term or non-current/long-term) and valued and classified on the firm's balance sheet. Current receivables are valued and reported for net realizable value, which is the amount expected to be collected and received in cash. This requires estimates of uncollectible portions (recorded in the balance sheet as contra accounts), as well as returns, allowances and discounts (recorded in the income statement as contra accounts).

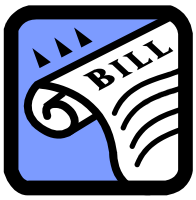
Credit Sales
To record a credit sale, increase or debit *accounts receivable* and increase or credit the sales or revenues account. Assume, in the below example, that a credit sale was made for $100.

Accounts Receivable	$100	
Sales		$100
To record credit sale and related receivable.		

When the $100 accounts receivable is paid, decrease or credit accounts receivable and increase or debit cash, as follows:

Cash	$100	
Accounts Receivable		$100
To record collection of account receivable.		

Billing Customers for Credit Sales
Firms extending credit to their customers must maintain separate records for each customer account. They do this to track how much each customer purchased, has already paid, and still owes. This information must be maintained to bill customers. To facilitate this process, firms extending credit to their customers maintain a separate account receivable for each customer. While the general ledger maintains a single accounts receivable balance, this single master or control balance is the total of all separate accounts receivable accounts for each customer at any point in time.



The separate accounts receivable balances for each customer or account support or supplement the balance in the general ledger. These separate supplemental accounts for each customer are called the *accounts receivable ledger*.

The Accounts Receivable Ledger

The below illustrate relations between the accounts receivable ledger, a schedule of accounts receivable and the accounts receivable balance or control total in the general ledger at any point in time. First, the accounts receivable ledger, which lists the accounts receivable balance for two customers, Customer A (with a balance of $1,000) and Customer B (with a balance of $2,000):

Accounts Receivable Ledger

Customer A

Date	Debit	Credit	Balance
31-Dec	$1,000		$1,000

Customer B

Date	Debit	Credit	Balance
31-Dec	$2,000		$2,000

If we were to prepare a schedule of all accounts receivable owed to the firm, a process that could be completed at any point in time, it would reflect the balances owed by Customer A and Customer B, as follows:

XYZ Corporation

Schedule of Accounts Receivable

Customer A	$1,000
Customer B	$2,000
Total	$3,000

This same accounts receivable balance, at $3,000, would be reflected in the general ledger control total in the general ledger for the firm, XYZ Corporation, as follows:

XYZ Corporation General Ledger

Accounts Receivable

Date	Debit	Credit	Balance
31-Dec	$3,000		$3,000

Of course, most firms would have many more than two customers with varying amounts of credit approvals and credit balances.

This process would be quite similar to that used for your credit card account. You have been approved, by your credit card company, for some credit card balance. They keep track of your balance and either mail or email monthly statements to you, and may even allow you to access your balance, at any time, on the Internet.

Some customers will pay their credit sales upon receipt of the first bill, preferring to avoid paying any interest. Other customers will pay for their credit purchases over time, preferring to pay the interest or finance charges. For example, assume that customer A agreed to pay 18% interest on any unpaid balance when credit was extended. Instead of paying the entire $1,000 balance, assume that customer A only paid $100, as follows:

Cash	$100	
Accounts receivable		$100

After the $100 payment is received, customer A has a balance of $900. If billed monthly, this balance will rise to $913.50 ($900 x 18% per year ÷ 12 months).

Finally, some customers will be unwilling or unable to pay off their credit purchases (or credit sales) in a timely fashion or at all.

Credit Card Sales

Merchants sign agreements with MasterCard or VISA or other credit card providers to increase sales. However, these firms, in exchange for this service, charge a merchant discount. Generally, the merchant discount ranges from 3 percent to 5 percent.

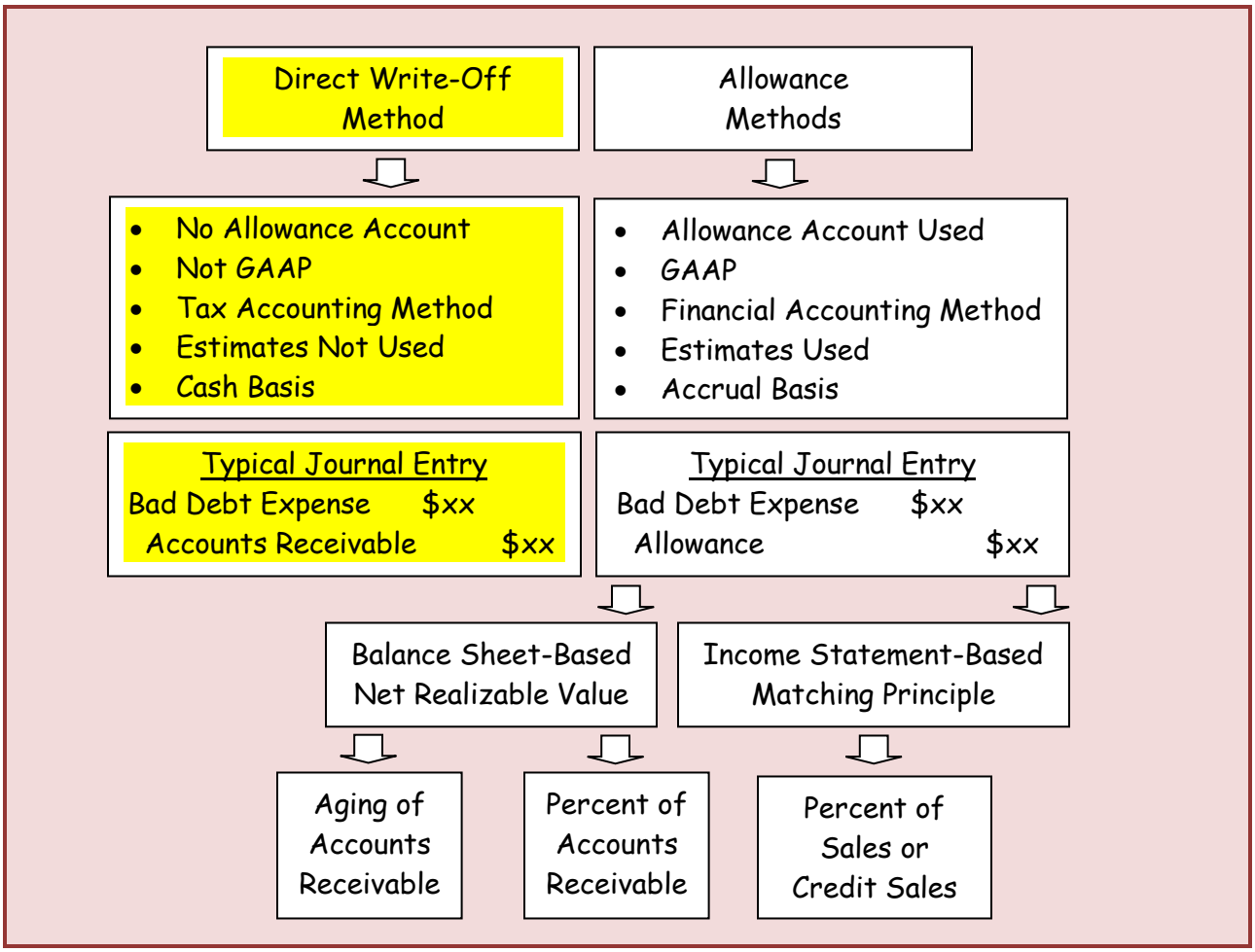
Assume customer purchases merchandise from your store for $100, and the merchant discount is 4 percent. Your net proceeds are $96, as follows:

Accounts receivable	$96	
Credit card expense or Merchant discount	$4	
Sales		$100

When the cash is received from the credit card company, typically through an electronic funds transfer, the following journal entry is made:

Cash	$96	
Accounts receivable		$96

Accounts Receivable Valuation Methods
Alternative methods of accounting for trade accounting receivable are summarized in the flowchart that follows. The direct write-off method is covered, first, so this component of the flowchart is highlighted.



The Direct Write-Off Method

The direct write-off method is simple and easy to apply, but does not value and report accounts receivable at net realizable value or match revenues and expenses to the same period earned or incurred (periodicity assumption). This method does not require or use a contra asset – the allowance for doubtful accounts account. It is not-GAAP.[3] This method is required by the IRS and for tax accounting purposes, even though this method is cash basis and not accrual basis. The loss is recorded with a debit to bad debt expense and a credit to the trade accounts receivable account, "writing off" the receivable "directly" to these accounts.

[3] This (or any) non-GAAP method may be used if the departure from GAAP does not result in any significant or material difference. Significance or materiality is a matter of professional judgment.

Consider the following fact pattern to illustrate weaknesses associated with use of the direct write-off method. Recall that application of the matching principle may require the use of estimates and we use accruals and contra accounts to fulfill the periodicity assumption. The direct write-off method records the bad debt expense only when the accounts receivable has been determined to be uncollectible (e.g., the firm or individual owing us the money has gone bankrupt and we have received a document confirming this fact).

A sale and account receivable for $750 is determined to be uncollectible in April. This sale was made on credit in January, and included in January sales. No estimate of bad debts was made, since the firm uses the direct write-off method. The revenue will appear in the January income statement and the bad debt expense will appear in the April income statement. Note how the revenues and expenses are not matched. The revenue appears in one accounting period and the related expense appears in a later accounting period, a violation of the matching principle and the periodicity assumption. The journal entry to record the bad debt, in April, follows:

	January	February	March	April
Impact on Revenues	$750			
Impact on Expenses				$750

Bad debt expense	$750	
Accounts receivable		$750
To record account receivable write-off.		

If the bad debt is later recovered, simply (1) reverse the entry used to write-off the account receivable and (2) record the cash receipt, as follows:

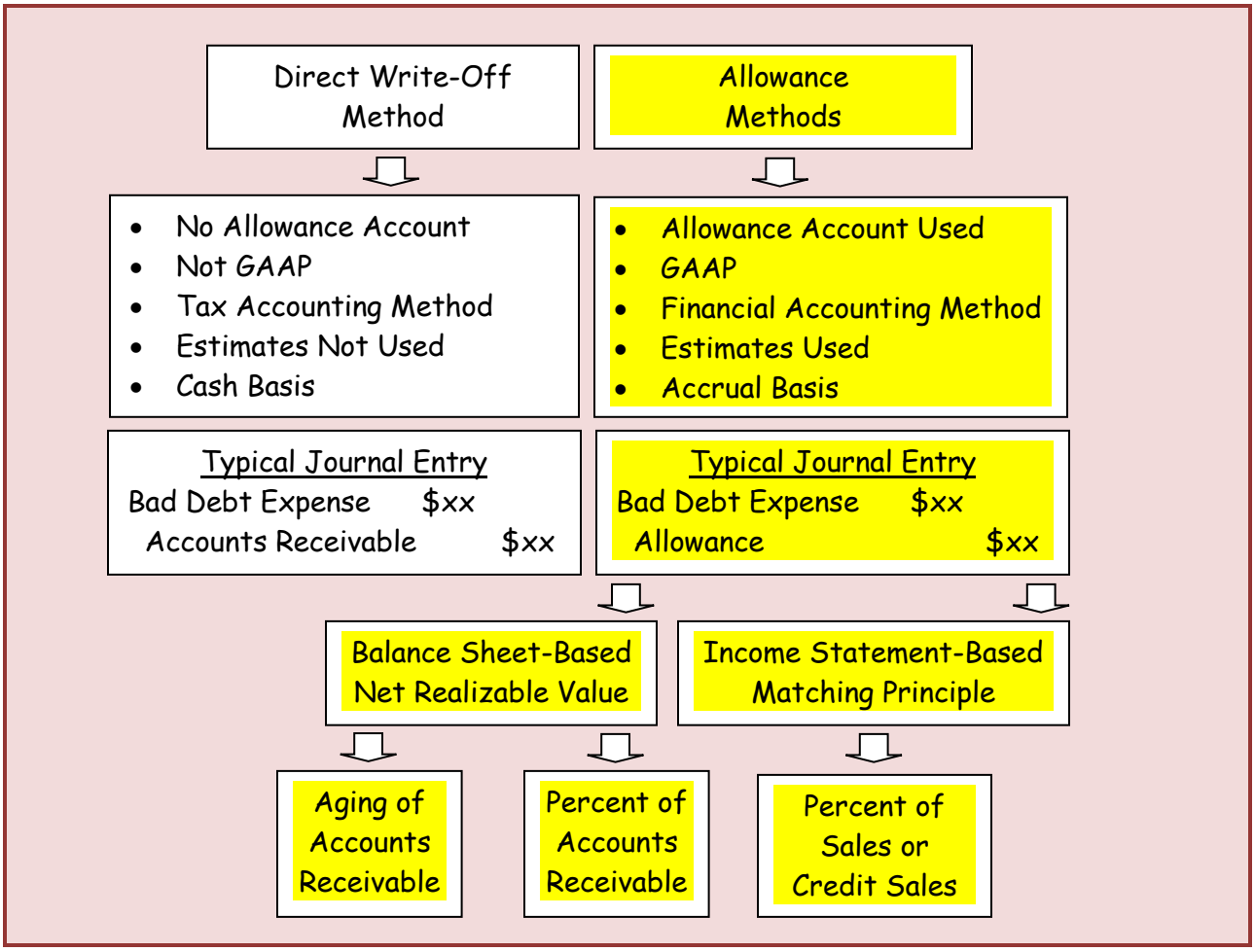
Accounts receivable	$750	
Bad debt expense		$750
To record recovery of account receivable previously written-off.		

Cash	$750	
Accounts receivable		$750
To record collection on account receivable previously written-off.		

The methods that follow are GAAP. They involve the use of systematic, rational, and methodical methods or techniques to match revenues and expenses to the appropriate accounting period, using the balance sheet for related contra asset accruals.

Allowance Methods

Allowance methods provide for the appropriate matching of revenues and expenses to the relevant period, but require the use of estimates. A contra asset account is used to achieve this objective. This account is the allowance for doubtful accounts or allowance for uncollectible accounts. Either income statement-based and balance sheet-based approaches may be used to provide for proper matching into the relevant period. The method alternatives are highlighted in the flowchart that follows:



In all allowance method cases, there is a debit to bad debt expense and a credit to allowance for doubtful accounts, as follows:

Bad debt expense	**$xxx**	
Allowance for doubtful accounts		**$xxx**
To record accrual for bad debts.		

In all allowance cases, when a receivable is determined to be uncollectible, the contra account, allowance for doubtful accounts, is debited and the accounts receivable account is credited.

Using the same, $750 example that was used to illustrate the journal entry required under the direct write-off method, the journal entry to record the write-off of an accounts receivable under an allowance method follows:

Allowance for doubtful accounts	$750	
Accounts receivable		$750
To record write-off of account receivable.		

Again, if the bad debt is later recovered, simply (1) reverse the entry used to write-off the account receivable against allowance for doubtful accounts and (2) record the cash receipt, but as follows:

Accounts receivable	$750	
Allowance for doubtful accounts		$750
To record collection on account receivable previously written-off.		

Cash	$750	
Accounts receivable		$750
To record collection on account receivable previously written-off.		

A Comparison of the Direct Write-Off and Allowance Methods for a Bad Debt

The below represents a review and comparison of the journal entries use to write-off an account receivable and restore it, if it later becomes collectible, under both direct write-off and allowance methods.

Direct Write-Off Method			Allowance Methods		
No			Bad debt expense	$xxx	
Estimate			Allowance		$xxx
The uncollectible nature of the receivable is determined					
Bad debt expense	$750		Allowance	$750	
Accounts receivable		$750	Accounts receivable		$750
The account receivable is restored and collected					
Accounts receivable	$750		Accounts receivable	$750	
Bad debt expense		$750	Allowance		$750
Cash	$750		Cash	$750	
Accounts receivable		$750	Accounts receivable		$750

The remainder of this section of the chapter will focus on the development of the measures or amounts ($xxx) to debit to bad debt expense and credit to allowance for doubtful accounts when establishing these accounts.

A Single Fact Pattern

A single fact pattern will be used to illustrate all of the GAAP-based allowance methods used to establish net realizable value of accounts receivable on the firm's balance sheet and match bad debt expense to revenues and the period during which the revenues were generated. The allowance for doubtful accounts contra asset account is used to present accounts receivable at net realizable value in the balance sheet, where two balance sheet presentation examples follow:

Current assets		
Accounts receivable	**$ xx**	
Less allowance for doubtful accounts	**(x)**	**$ xx**

Current assets	
Accounts receivable (net of $x doubtful accounts)	**$ xx**

The next few sections will focus on 3 GAAP-based alternatives used to account for accounts receivable, allowance for doubtful accounts, and bad debt expense, using a single fact pattern, also provided below.

1. Direct write-off (non-GAAP) method
2. Allowance (GAAP) method
   - Income statement (Percentage-of-Sales)
   - Balance sheet (Percentage-of-Receivables or Aging of Receivables)

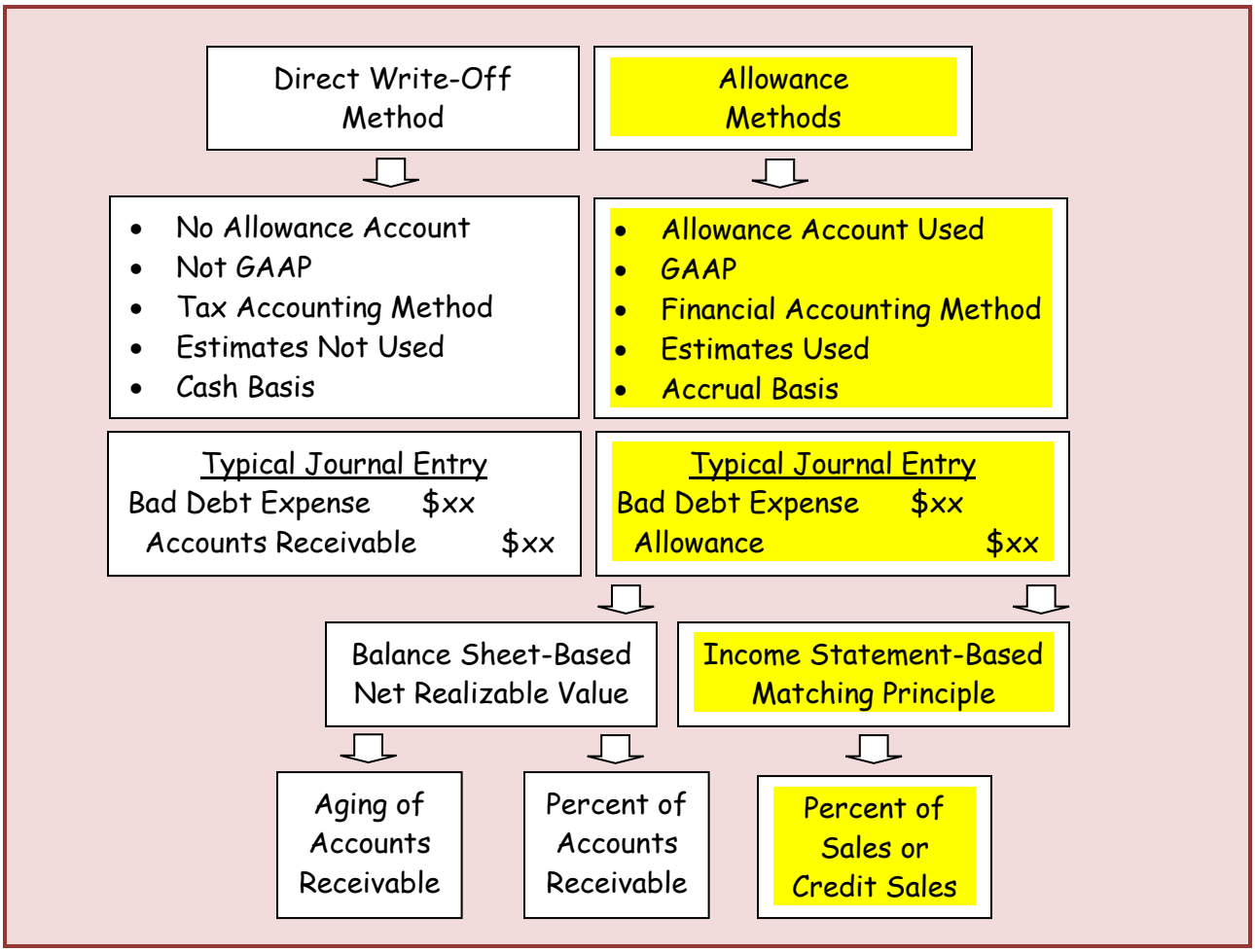
Below is an example of an aging of accounts receivable to be used for the balance sheet-based approaches (see above), but we will begin with the income statement-based approach (see above):

				1 to 30	31 to 60	61-90	Over
			Not Yet	Days	Days	Days	90 Days
Customer Account No.	Customer	Totals	Due	Past Due	Past Due	Past Due	Past Due
56789	AAA Painting	$500	$500				
75543	XYZ Contracting	$750			$750		
12345	Pest Control, Inc.	$1,250		$1,250			
95455	Bob & Sons	$900		$300	$600		

BREAK IN SEQUENCE

62358	Stores-R-Us	$1,350				$750	$600
50001	Billy Bob	$1,700	$1,700				
Total receivables		$100,000	$85,200	$7,300	$4,500	$2,100	$900
% uncollectible		3.4%	2.0%	5.0%	9.8%	25.2%	40.1%
Estimated uncollectible		$3,400	$1,704	$365	$441	$529	$361

The Allowance Method – Income Statement-Based Percentage-of-Sales Approach
Patterns or trends in "credit" sales and related bad debts from prior years provide the basis for a reasonable estimate or projection or "matching" of the credit component of sales to bad debts for future accounting periods. If experience from prior periods suggests that 2% of credit sales for the current period are likely to become uncollectible, the following JE would be made:



Assume that your firm completes approximately 50% of sales for cash and 50% of sales on credit, as follows:

Cash Sales	**$100,000**
Credit Sales	**$100,000**
Total or Gross Sales	**$200,000**

Further assume that your firm has decided on and consistently applies the income statement-based approach to estimating bad debts. They must, of course, have an aging of accounts receivable, as well, to management collections.

Assume that 3.5% of credit sales, historically, have proved to be uncollectible. Using this historical experience rating on credit sales collections, you "match" the $100,000 credit sales and $200,000 total sales for the period (see above), with the expense, 3.5% or $3,500 bad debt expense, as follows:

Bad Debt Expense	**$3,500**	
Allowance for Doubtful Accounts		**$3,500**

Note that the above journal entry does not take any existing allowance for doubtful accounts balance into consideration when matching the bad debt expense to credit sales for the period.

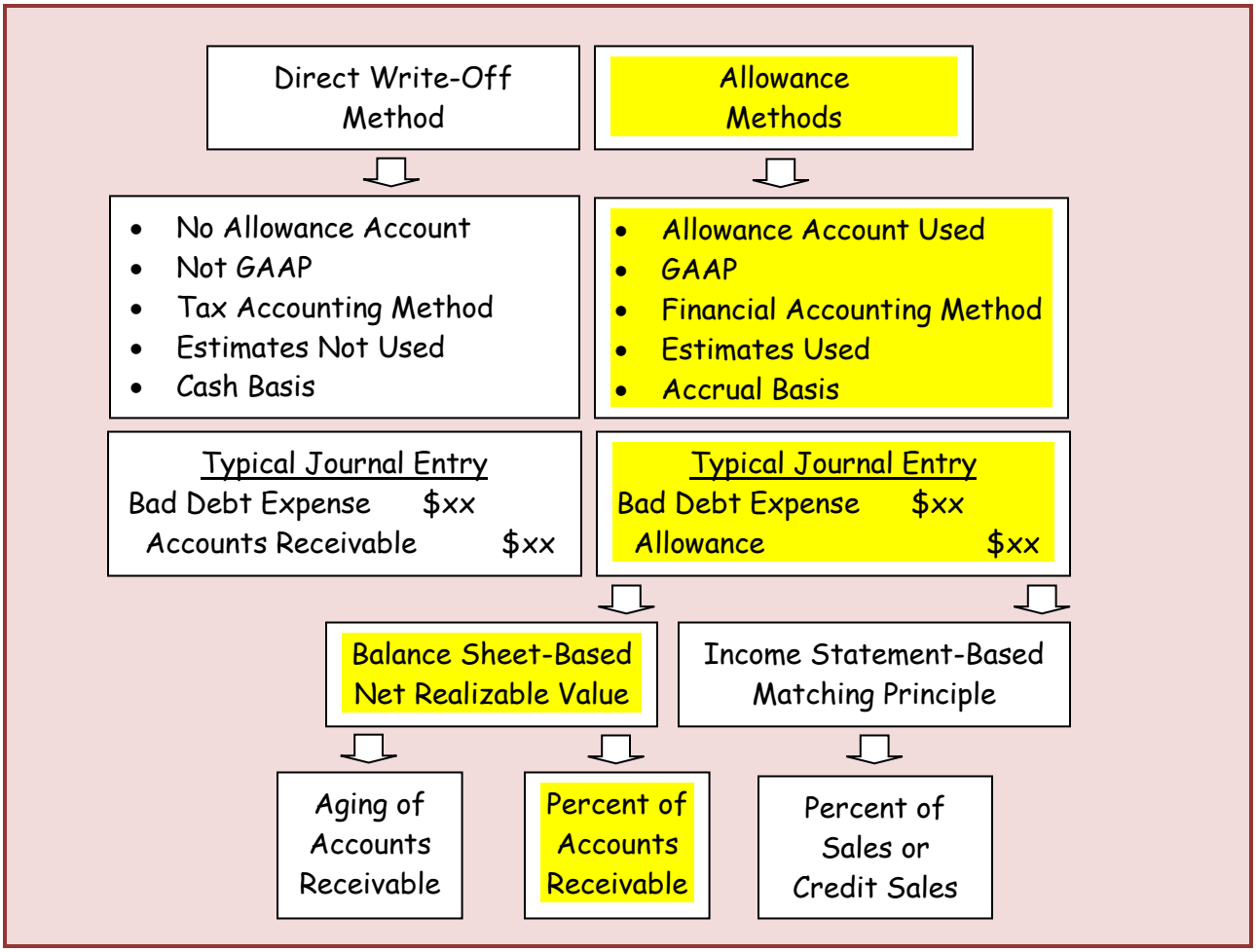
The next two variations of the balance sheet-based approach to valuing net realizable value of accounts receivable are, now, covered, where we begin with the percentage-of-receivables approach.

The Allowance Method – Balance Sheet-Based Percentage-of-Receivables Approach

Again, using past experience, a firm may estimate the allowance from an aging schedule. The aging of accounts receivable is reproduced, below, where a very simple computational example follows:

				1 to 30	31 to 60	61-90	Over
			Not Yet	Days	Days	Days	90 Days
Customer Account No.	Customer	Totals	Due	Past Due	Past Due	Past Due	Past Due
56789	AAA Painting	$500	$500				
75543	XYZ Contracting	$750			$750		
12345	Pest Control, Inc.	$1,250		$1,250			
95455	Bob & Sons	$900		$300	$600		
BREAK IN SEQUENCE							
62358	Stores-R-Us	$1,350				$750	$600
50001	Billy Bob	$1,700	$1,700				
Total receivables		$100,000	$85,200	$7,300	$4,500	$2,100	$900
% uncollectible		3.4%	2.0%	5.0%	9.8%	25.2%	40.1%
Estimated uncollectible		$3,400	$1,704	$365	$441	$529	$361

The above suggests that about 3.4% of total accounts receivable prove to be uncollectible, based on past experience. We will use this approach in the next example. Recall the flowchart framework:



With $100,000 in accounts receivable, we expect $3,400 to be uncollectible. The allowance for doubtful accounts account already contains a credit balance of $200. We must "match" the contra account balance to the accounts receivable balance with a "plug," as follows:

	Desired Allowance Balance	**$3,400**
Less:	**Existing Allowance Balance**	**$200**
Equals:	**Additional Allowance Required**	**$3,200**

The journal entry to adjust or "plug" the allowance account to the desired balance and the presentation of accounts receivable in the balance sheet, where the net realizable value of accounts receivable is presented, follows:

Bad Debt Expense	**$3,200**	
Allowance for Doubtful Accounts		**$3,200**
To adjust balance to $3,400 or 3.4% of $100,000.		

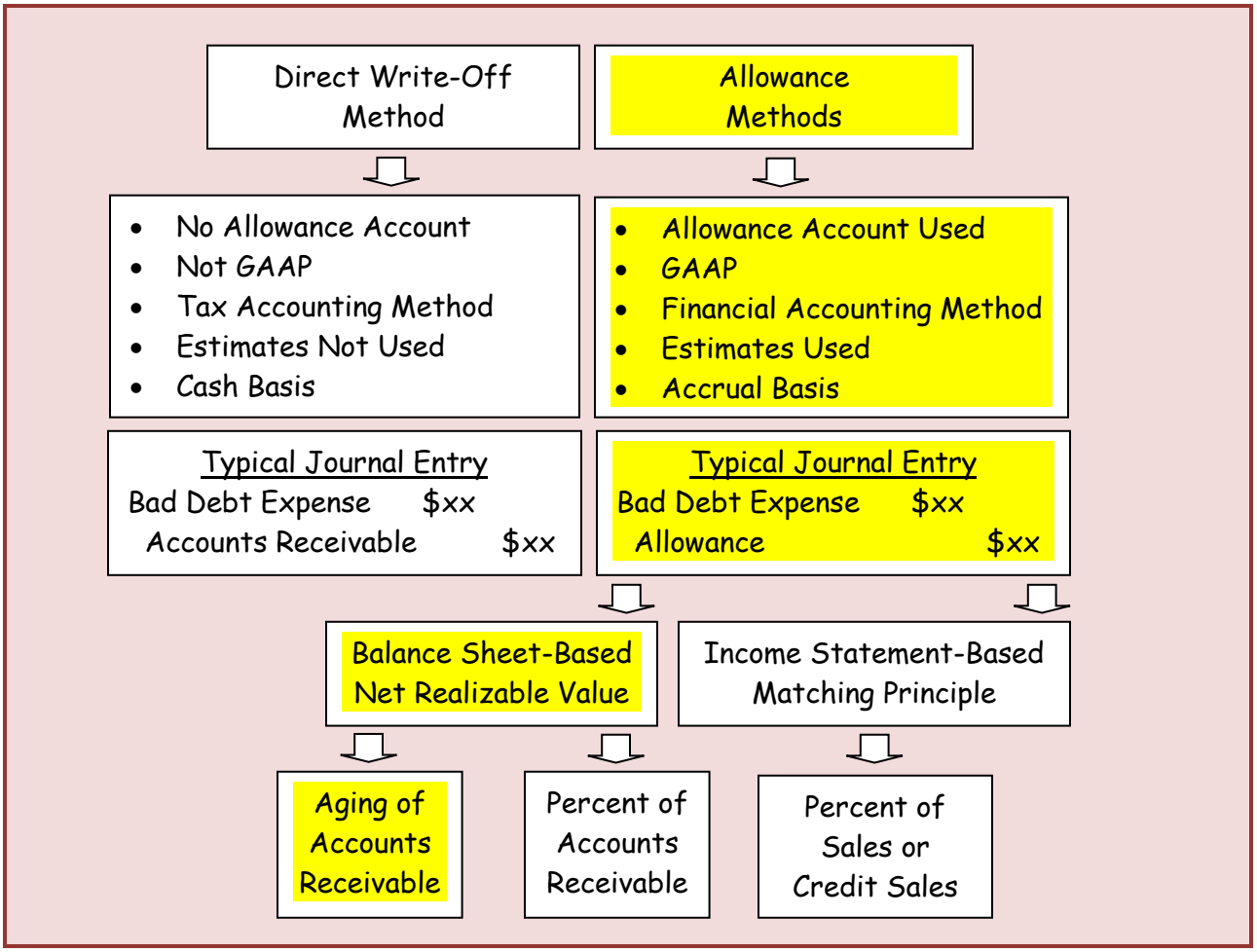
Current Assets	
Accounts receivable	**$100,000**
Less: Allowance for doubtful accounts	**$3,400**
Accounts receivable (net)	**$96,600**

The Allowance Method – Balance Sheet-Based Aging of Receivables Approach

The relevant component of the same aging of accounts receivable is reproduced below, again, where, in this case, the same adjusting journal entry would be required, as follows:

Total receivables		$100,000	$85,200	$7,300	$4,500	$2,100	$900
% uncollectible		3.4%	2.0%	5.0%	9.8%	25.2%	40.1%
Estimated uncollectible		$3,400	$1,704	$365	$441	$529	$361

Bad Debt Expense	**$3,200**	
Allowance for Doubtful Accounts		**$3,200**
To adjust balance to [$1,704+$365+$441+529+$361] based on aging of accounts receivable.		



The Allowance Methods - Comparing Balance Sheet and Income Statement Approaches

The balance sheet and income statement approaches may be viewed as directional. Both methods involve a debit to bad debt expense and both involve a credit to the allowance or allowance for doubtful accounts account. However, (1) the balance sheet approach begins with an adjustment to the desired balance to the allowance account or a "plug" and (2) the income statement approach begins with a matching of sales to the desired bad debt expense, as follows:

Balance Sheet Method:	**CR Allowance for Doubtful Accounts**	→	**DR Bad Debt Expense**
Income Statement Method:	**DR Bad Debt Expense**	→	**CR Allowance for Doubtful Accounts**

Both of the allowance methods would record an actual write-off of a particular bad debt against the allowance account, as follows:

Allowance for Doubtful Accounts	**$ XX**	
Account Receivable		**$ XX**

If a collection is later made on an account receivable previously written-off, the first step is to reverse the above entry, restoring the account receivable, as follows:

Account Receivable	**$ XX**	
Allowance for Doubtful Accounts		**$ XX**

An entry is, then, made to record the cash collection and credit the customer account, just as would be made in the event that the receivable had never been written off and had been collected in a timely manner, as follows:

Cash	**$ XX**	
Account Receivable		**$ XX**

Illustration of a Credit Sale Including Sales Tax Collections

Credit sales to retail customers include local sales taxes. For example, assuming a combined local and state sales tax rate of 6% and a $100 sale, on credit, the following JE would be made by the retailer or seller:

Accounts receivable	**$106**	
Sales		**$100**
Sales tax payable		**$6**

The retailer is acting as an intermediary and collecting the 6% or $6 in sales tax, only to pay this amount to the taxing authority, typically, monthly. Therefore, if the entire account receivable is paid by the customer within 30 days, upon receipt of their billing

statement, the sales tax collected would be sent to the taxing authority and the following JEs would be made:

Cash	$106	
Accounts receivable		$106

Sales tax payable	$6	
Cash		$6

If only half of the accounts receivable is paid within 30 days, only half of the sales tax payable must be sent to the taxing authority, as follows:

Cash	$53	
Accounts receivable		$53

Sales tax payable	$3	
Cash		$3

Therefore, while the retailer uses accrual accounting, the payment of the sales taxes collected by the retailer for the taxing authority must be paid to the taxing authority only when the cash is received (a cash basis approach). This is based on the "ability to pay" principle. It would be unreasonable to expect the retailer to send the sales tax to the taxing authority before the sales tax was actually collected.

Notes Receivable

Promissory notes or notes receivable are written promises to pay some specified amount, with stated (or imputed) interest, on demand or at some specific date or future point in time. On occasion, a vendor might require a note receivable to replace an account receivable (e.g., when a customer requests an extension of time to pay a past due note). The seller (or vendor) requires the replacement of the trade account receivable with a note receivable to formalize the debtor's acknowledgement of the debt in the event of litigation – if a lawsuit becomes necessary to collect the debt. The note would specify the (1) principal amount, (2) interest rate, (3) maker of the note, and (4) payee of the note.

The journal entry used to reclassify a $5,000 trade account receivable to a note receivable follows:

Note receivable	$5,000	
Accounts receivable		$5,000

The terms of the note payable are specified in the promissory note. In this case, the annual rate of interest is 10 percent. Both principal and interest on the note is due in 90 days, as follows:

Principle X Annual interest rate X Fraction of a year = Interest
or
$5,000 X 10% X 90/365 = $123 (rounded)
or
$5,000 X 10% X 90/360 = $125

Notice that local business practice and the form of the note will determine whether interest is computed on a 365 day year ($123; above) or a 360 day year ($125; above). We will base our interest computations on the assumption of a 360 day year.

If paid, 90 days after the terms are agreed to and the note is signed, the following journal entry is made:

Cash	$5,125	
Note receivable		$5,000
Interest income		$125

The recipient will credit the *interest revenue* or *interest earned* or *interest income* account for the $125 generated from the note receivable.

Dishonored Notes

If a note is dishonored, due to refusal or inability to pay, the payee is likely to take all reasonable actions to collect. In the interim, and continuing with the same fact pattern from the above example, the note is charged back to the account receivable account, as follows:

Accounts receivable	$5,125	
Note receivable		$5,000
Interest income		$125

End-of-Period Interest Accruals

Any notes receivable outstanding at the end of an accounting period require an accrual to "book" the interest income and receivable prior to the preparation of the firm's balance sheet and income statement. The interest earned during the period must be "matched" to the period.

Assume that Belak Enterprises has a 90-day, 12% note receivable due at the end of February 2015, but is preparing their December 2014 year-end financial statements for a $10,000 note. The below journal entry must be made on December 31, 2014:

Interest receivable	$100	

	Interest income	$100
To accrue interest at 12% for 30 days.		

When collected, on February 28, 2015, the following journal entry will be made:

Cash	$10,300	
Interest receivable		$100
Interest income		$200
Note receivable		$10,000

Selling Receivables

Accounts receivable, like any asset, can be sold. In the case of accounts receivable, the buyer (factor) charges a factoring fee. The seller converts the accounts receivable to cash and the risk of default (bad debt) passes to the factor. Assume, for example, that Belak Enterprises sells $10,000 of their accounts receivable, is charged a 5% factoring fee, and records the sale:

Cash	$9,500	
Factoring fee expense	$500	
Accounts receivable		$10,000

Accounting for the sale of a note receivable would be comparable.

Pledging Receivables

Instead of selling receivables, a firm might simply borrow money and pledge the receivables as security for the loan. This would not transfer the risk of the bad debt, since there is no buyer, and ownership of the receivable does not transfer. The lender has the right to receive proceeds from the receivable when received.

For example, assume that Belak Enterprises pledges $20,000 in receivables in return for $15,000:

Cash	$15,000	
Notes receivable		$15,000

Terms would be disclosed in footnotes to the financial statements.

Appendix A

Accounts Receivable Turnover

Accounts receivable evolve from credit sales, since cash sales are paid for with cash, as follows:

CASH SALE

Cash	$750	
Sales		$750

CREDIT SALE

Accounts Receivable	$750	
Sales		$750

Accounts receivable must be collected, and one indicator of superior management is the speed with which these collections occur. There are industry averages available to compare a specific firm's performance against. The basic formula for the computation of accounts receivable turnover follows:

Accounts receivable turnover = Net sales ÷ Average accounts receivable (net)

As is the case with all turnover measures, the numerator comes from the income statement, covering a period of time, and the denominator comes from both beginning and ending balance sheets, or the average of the beginning of the period and the end of the period.

Appendix B

Sales Journal

Cash sales are recorded in the cash receipts journal, but credit sales must also be recorded in some fashion. Credit sales are recorded in the sales journal.

CASH SALE – RECORDED IN THE CASH RECEIPTS JOURNAL

Cash	$750	
Sales		$750

CREDIT SALE - RECORDED IN THE SALES JOURNAL

Accounts Receivable	$750	
Sales		$750

Assume that there are 4 cash sales during a period:

1. one cash sale for full price at $250,
2. one cash sale for $500, but resulting in a sales return for the full amount and the very next day and within the same period, so resulting in a cash disbursement,
3. one cash sale for $750, but resulting in a sales discount of $100, immediately upon sales, and
4. one cash sale for $1,000, but resulting in a sales allowance of $50, due to the identification of damage, and within the same period of sale.

This is how these cash sales transactions would appear in a cash receipts journal, where you would, first, record the cash sales:

Transaction	DR Cash	CR Sales	DR Accounts Receivable	DR Sales Returns	DR Sales Discounts	DR Sales Allowances
1	$250	$250				
2	$500	$500				
3	$750	$750				
4	$1,000	$1,000				
	$2,500	$2,500	$0	$0	$0	$0

The sales returns, sales discounts, and sales allowances would be recorded in a cash receipts journal, as follows:

Transaction	CR Cash	Sales	DR Accounts Receivable	DR Sales Returns	DR Sales Discounts	DR Sales Allowances
1						
2	$500			$500		
3	$100				$100	
4	$50					$50
	$650	$0	$0	$500	$100	$50

This is how these credit sales transactions would appear in a sales journal, where it is assumed that all of these sales generated accounts receivable and occurred on credit:

Transaction	DR Cash	CR Sales	CR Accounts Receivable	DR Sales Returns	DR Sales Discounts	DR Sales Allowances
1						
2			$500	$500		
3			$750		$100	
4			$1,000			$50
	$0	$0	$2,250	$500	$100	$50

Chapter 8[1]

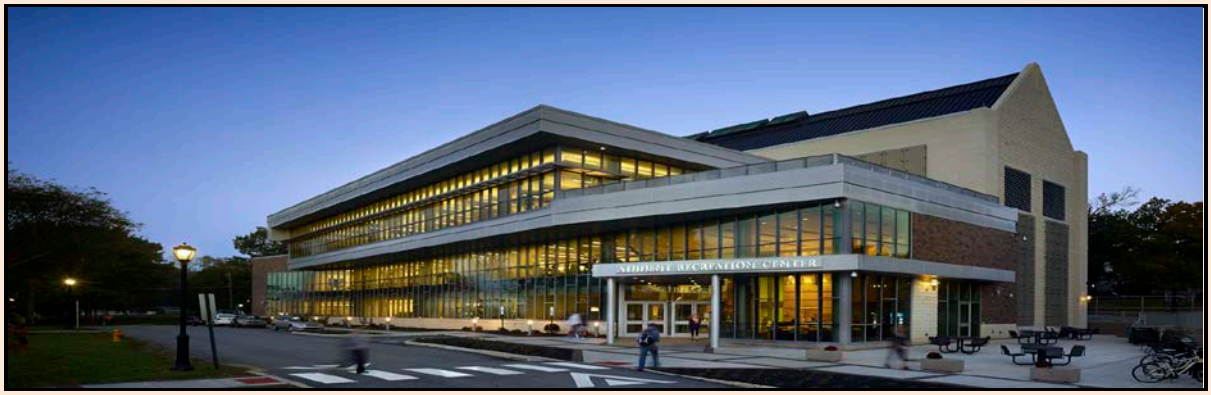
Accounting for Long-Term or Non-Current Assets

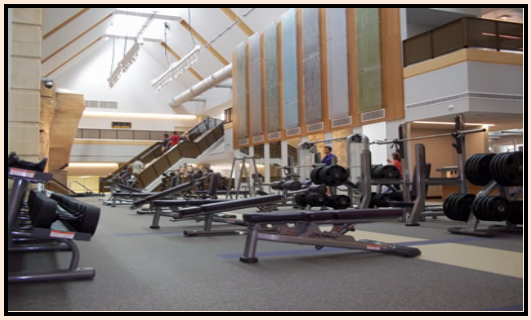
Learning Objectives

- Define property, plant and equipment.
- Explain how cost is determined for land and other long-lived assets.
- Describe how the relative sales value or proportional methods are applied to lump-sum purchases of assets.
- Explain and define depreciation and accumulated depreciation.
- Identify the variables involved in computing depreciation.
- Compute, compare and record straight-line (SL), sum-of-the-year's digits (SYD), double-declining balance (DD B), the modified accelerated cost recovery system (ACRS), and units-of-production methods of depreciation.
- Explain partial year depreciation and changes in estimates.
- Explain how to develop costs for natural resources and depletion.
- Define intangible assets and the costs relevant for their valuation.
- Account for natural resources, including depletion.
- Explain the amortization process.
- Describe the procedure for the valuation of goodwill and how it is amortized.
- Explain accounting issues relating to research and development costs.
- Compute gains and losses on asset disposal.
- List and describe the three fact patterns for asset disposal.

[1] Acknowledgement: An earlier version of this chapter was provided to all 2014 winter term ACC201 students and all accounting faculty on January 13-14, 2014, for review notes, comments, and recommendations for improvement. I appreciate the review notes, comments, and recommendations from the 2014 winter term ACC201 students (n=11) and Professor Robert Derstine. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

Some photos of the new (2012) West Chester University student recreation center:





Below are architectural drawings of the new West Chester University College of Business and Public Affairs building ($39 million, 90,000 square-foot & five-stories). Construction is scheduled for completion during 2016.

Property, plant and equipment (PP&E) includes land, buildings, equipment, furniture, and other long-lived assets. A long-lived asset is one with a useful life of more than one accounting period. Other terms used for PP&E include fixed assets (FA). For some firms, PP&E or FA represents the single largest class of assets they own.

Property, plant and equipment or fixed assets are long-term or non-current assets. They are used (and consumed) for ongoing operations, but have useful lives extending over more than one accounting period. This latter characteristic distinguishes them from accounts receivable, inventory, or other short-term or current assets. Land, of course, is included in property, plant and equipment and fixed assets, but unlike buildings or equipment or furniture, does not wear out, experience economic or functional obsolescence, is not a wasting asset, and is not consumed during operations.

Because fixed assets wear out, as they are used (or consumed) during operations, we attempt to match the cost of these assets to the periods over which revenues are generated from their use. We have to attempt to match (*matching principle*) these costs to the periods (*periodicity assumption*) benefitting from their use over lengthy periods of time. We have systematic and rational methods and techniques for matching these costs to the revenues generated from the use of these long-term or non-current assets, but none of them are intended to represent fair market value. They are methods developed from industry (e.g., Chrysler, Ford, GM, and DuPont), where these for-profit firms had to formulate techniques to attempt to measure profits and losses or rates of return from the use of their assets.

Several measures are required to assist firms in computing the depreciable base, or the amount to be depreciated and matched to revenues over the life of the long-lived asset:

1. The cost of the asset must be computed. Cost might, for example, include freight-in and/or the cost of installation for a piece of equipment used in a factory.
2. An estimate of the economic useful life of the asset must be determined. This is usually based on the firm's experience (e.g., 5 years for an automobile).
3. The estimated salvage value at the end of the life of the asset is also required under GAAP and for financial accounting purposes.[2]

The cost of a long-lived asset might be adjusted (increased) for significant improvements to the asset (e.g., replacing an engine or transmission for a truck), while repairs (e.g., oil changes or tune-ups) are expensed when completed.

[2] Salvage values are not computed for income tax purposes under U.S. tax law. Total **cost recovery** is provided for under the U.S. system of income taxation.

The Cost of Long-Lived Assets

Property, plant and equipment or fixed assets are recorded at cost (the cost principle). Cost includes all expenditures necessary to prepare the asset to be placed in operations. For example, cash or early payoff discounts on the purchase of a piece of machinery will reduce its cost, while freight, unpacking, assembly, installation and testing increase the cost of a piece of machinery or equipment. Constructing a base or foundation, modifying or adding electrical outlets would also increase and be added to the cost of the long-lived asset.

Land

The cost of land includes all closing costs (e.g., real estate commissions, title search and insurance fees, and legal and recording fees). An example of the relevant portions of a closing statement for the July 9, 2009, purchase of land[3] follows:

Summary of Borrower's Transactions		**Summary of Seller's Transactions**	
Gross amount due from borrower:		Gross amount due to seller:	
Contract sales price	$13,000.00	Contract sales price	$13,000.00
Settlement charges to borrower	$741.50		
Adjustments for items seller paid in advance:		Adjustments for items paid by seller in advance:	
County taxes 7/9/2009 to 1/1/2010	$256.54	County taxes 7/9/2009 to 1/1/2010	$256.54
2009 School Taxes Due	$542.16		
Gross amount due from borrower:	$14,540.20	Gross amount due to seller:	$13,256.54
Amounts paid by or in behalf of the borrower:		Reduction in amount due to seller:	
Deposit or earnest money	$1,000.00	Settlement charges to seller	$4,085.96
Adjustments for items upaid by seller:		Adjustments for items unpaid by seller:	
School taxes 7/1/2009 to 7/6/2009	$7.43	School taxes 7/1/2009 to 7/6/2009	$7.43
Total paid by/for borrower:	$1,007.43	Total reduction in amount due seller:	$4,093.39
Cash at settlement from/to borrower:		Cash at settlement to/from seller:	
Gross amount due from borrower	$14,540.20	Gross amount due to seller	$13,256.54
Less amount paid by/for borrower	$1,007.43	Less total reduction in amount due seller	$4,093.39
CASH (X) FROM () TO BORROWER	$13,532.77	**CASH () FROM (X) TO SELLER**	$9,163.15

In the above case, a $1,000 deposit was provided for land, while the offer for the purchase was under consideration by the seller. The agreed upon sales price was $13,000. While the closing statement format provides for financing, no loan was associated with the purchase/sale, which was a cash purchase at a total out-of-pocket

[3] This data originates from an unaltered, actual closing statement.

cost of $14,540.20 ($13,532.77 + $1,000.00). The county taxes represent a prepayment of $256.54,[4] as follows:

Deposit or earnest money	$1,000.00
CASH (X) FROM () TO BORROWER	$13,532.77
subtotal	$14,532.77
Less: County taxes 7/9/2009 to 1/1/2010	-$256.54
Equals: Cost of land	$14,276.23

The above table summarizes the information needed to make the journal entries for the two cash payments, where the total historical cost basis of the land is $14,276.23, as follows:

Deposit for Land Offer	**$1,000.00**	
Cash		**$1,000.00**

Land	**$14,276.23**	
Prepaid county taxes	**$256.54**	
Cash		**$13,532.77**
Deposit for land offer		**$1,000.00**

If land is purchased for a building site, the cost of surveying, clearing, grading, and providing for drainage are added to the cost of the land, as are government assessments (for public roads, sewer, and sidewalks). If a structure must be removed from the land, the cost of removal, less any amounts recovered through salvage, is added to the cost of the land. All of these are costs associated with preparing the land for the construction of a building, and are capitalized as part of the cost of the land.

Land Improvements

The cost of improvements to land are accounted for separately, as, unlike land, they have a limited life. Parking lot surfaces, driveways, fences, shrubs and lighting systems are examples of depreciable land improvements.

Buildings

The cost of buildings are accounted for separately, whether purchased as part of the land or constructed. If self-constructed, the firm must develop a systematic and rational methodology for the capitalization of direct materials, direct labor, and overhead associated with construction, and these costs will be capitalized, only to be depreciated once the building is completed and placed in operation or service.

[4] If a property is purchased for back taxes at a sheriff's auction, these taxes, paid on behalf of another party, represent part of the cost of the land or land and building, and are capitalized. They are not deductible property taxes and are not expensed.

Equipment
Equipment costs include all costs necessary to ready these assets for operations. This includes the purchase price, sales taxes, transportation costs, insurance (while in transit), installation, delivery, assembly and testing.

Separate accounts are maintained for land, land improvements, buildings, equipment, and any other long-lived assets (e.g. vehicles and furniture & fixtures). These tend to assist the firm in tracking these assets and recording depreciation, by asset class. Similar classes of assets tend to be depreciated under comparable methods and have very different economic useful lives. For example, a building might be estimated to have an economic useful life of 40 years, but an automobile might be estimated to have an economic useful life of only 5 years.

Account Number	Account Title
150	Land
152	Land Improvements
154	Buildings
156	Automobiles
158	Equipment
160	Furniture & Fixtures

Allocating Costs for Lump-Sum Purchases
A lump-sum, group, bulk or basket purchase requires the allocation of the purchase price to each asset based on its relative sale value or relative market value. This is also referred to as the proportional method.

Assume that the example, from above, involved the purchase of a home in a residential area, to be used as a rental property. The land is a non-wasting asset that does not experience economic or functional obsolescence. The building, however, will wear out, over time, and must be depreciated. Assume that the property was a foreclosure and the cost was $14,276.23. When asked, the appraiser recommends that the property is valued is $60,000, with 25 percent of the cost associated with unimproved land. An allocation or proration or apportionment of the cost is completed, as follows:

	Relative Sales Value			Apportioned Costs
Land	$15,000	25%	$14,276	$3,569
Building	$45,000	75%	$14,276	$10,707
Total	$60,000	100%		$14,276

In the above example, $3,569 of the purchase price is associated with non-depreciable land and $10,707 is subject to depreciation (less any estimated salvage value) over the life of the building.

Depreciation
Depreciation represents a process of allocating costs of long-lived assets to the periods benefitting from their use. It does not represent a fair market or appraised value of these assets, but involves the use of systematic and rational methods developed, by industry, to match expenses with revenues.

Recall that we must have three measures to help us compute and record depreciation expense:

1. Cost
2. Useful life
3. Salvage value

Cost is easily determined, but the useful life and savage value, at the end of the asset's useful life, represent estimates.

Salvage value is also referred to as residual value or scrap value or trade-in value, if the asset is expected to be traded-in at the end of its estimated economic useful life.

The useful life of an asset is the estimated period over which the asset is expected to be useful, in operations, and for the production of revenues and the generation of profits. A firm is likely to use their experience, or the experiences of others in their industry, to estimate the useful life of an asset.

Depreciation Methods
A variety of depreciation methods are used to apportion, allocate or attempt to match (i.e., matching principle) costs of economic or functional obsolescence for long-lived assets to a period (i.e., periodicity assumption). They include, but are not limited, to the following methods:

- Straight-line (SL)
- Sum-of-the-year's digits (SYD)
- 200% or Double-declining balance (DDB)
- Modified accelerated cost recovery system (MACRS)
- Units-of-production or activity

A Common Fact Pattern
Assume that a long-lived asset, an automobile, has a cost of $10,000, a useful life of 5 years, and an estimated salvage value of $1,000, as follows:

	Cost	**$10,000**
Less:	**Salvage**	**$1,000**
Equals:	**Depreciable Base or Cost**	**$9,000**

Straight-Line Depreciation

The straight-line (SL) method of depreciation is easy to apply, where an equal amount of depreciation expense is recorded for each period. This method assumes that (1) the economic usefulness and (2) the repair and maintenance required for the long-lived asset is the same for each period. Using the common fact pattern (above), the below table provides for the computation of annual depreciation for each of the five years:

Period	Depreciation Expense	Book Value	Computational Notes
0		$10,000	
20X1	$1,800	$8,200	$10,000-$1,000=$9,000x20%=$1,800
20X2	$1,800	$6,400	Same as above
20X3	$1,800	$4,600	Same as above
20X4	$1,800	$2,800	Same as above
20X5	$1,800	$1,000	Same as above
Total	$9,000		

Note that under the straight-line method of depreciation, a 5 year asset is depreciated at 20% per year (100% ÷ 5 years = 20%) of the depreciable base for each year. Salvage or residual value at the end of the asset's estimated economic useful life has been estimated at $1,000, providing for a $9,000 depreciable base. Therefore, the below adjusting journal entry would be made to record annual depreciation expense at the end of each of the 5 years:

Depreciation Expense - Automobiles	$1,800	
Accumulated Depreciation - Automobiles		$1,800

Recall that depreciation expense is an expense account and accumulated depreciation is a contra asset account.

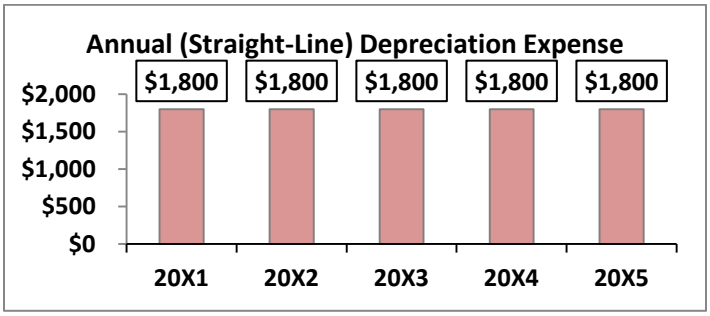
For the below table, each column has been given a letter heading (A through G) to illustrate relevant measures over the life of this automobile, purchased for $10,000, with an estimated salvage value of $1,000, for its entire, 5 year estimated useful life. Cost less salvage equals the depreciable base or cost [A-B]. The depreciable base or cost multiplied by the depreciation rate equals the amount of depreciation expense for each year [CxD]. Historical cost less the amount of accumulated depreciation equals the book value (or net book value or carrying value or net fixed asset value) of the asset at the end of each year [A-F]. Note that the asset is not depreciated below $1,000, its salvage value [B].

Year or Period	A Cost	B Salvage	C [A-B] Depreciable Base or Cost	D Depreciation Rate	E [CxD] Depreciation Expense	F Accumulated Depreciation	G [A-F] Book Value
0	$10,000	$1,000	$9,000	0%	$0	$0	$10,000
20X1	$10,000	$1,000	$9,000	20%	$1,800	$1,800	$8,200
20X2	$10,000	$1,000	$9,000	20%	$1,800	$3,600	$6,400
20X3	$10,000	$1,000	$9,000	20%	$1,800	$5,400	$4,600
20X4	$10,000	$1,000	$9,000	20%	$1,800	$7,200	$2,800
20X5	$10,000	$1,000	$9,000	20%	$1,800	$9,000	$1,000
Total	$10,000	$1,000	$9,000	100%	$9,000		

At the end of each year, the section of the balance sheet representing fixed assets or property, plant and equipment would reflect the historical cost and accumulated depreciation and book value, as follows:

	12/31/20X0	12/31/20X1	12/31/20X2	12/31/20X3	12/31/20X4	12/31/20X5
Property, plant & equipment	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
Less: Accumulated depreciation	$0	$1,800	$3,600	$5,400	$7,200	$9,000
Property, plant & equipment (net)	$10,000	$8,200	$6,400	$4,600	$2,800	$1,000

The straight-line method is popular, because it is easy to understand and apply. It provides for a fixed amount of depreciation expense to be recorded on the firm's income statement for each year, as the table, below, illustrates:



Sum-of-the-Years' Digits Depreciation

The sum-of-the-years' digits (SYD) method of depreciation is an accelerated technique and results in a decreasing amount of depreciation each period or year, where the denominator in the fraction used to compute annual depreciation expense is the sum-of-the years' digits. Like the straight-line method, salvage value is deducted in arriving at the amount to be depreciated over the estimated economic useful life of the asset. Extending use of the common fact pattern from above to the sum-of-the-year's digits method, the below table provides computations for this accelerated method of depreciation:

Period	Depreciation Expense	Book Value	Computational Notes
0		$10,000	
20X1	$3,000	$8,200	$10,000-$1,000=$9,000x5/15=$3,000
20X2	$2,400	$6,400	$10,000-$1,000=$9,000x4/15=$2,400
20X3	$1,800	$4,600	$10,000-$1,000=$9,000x3/15=$1,800
20X4	$1,200	$2,800	$10,000-$1,000=$9,000x2/15=$1,200
20X5	$600	$1,000	$10,000-$1,000=$9,000x1/15=$ 600
Total	$9,000		15/15

The sum-of-the-year's digits method produces a different result, when compared to the straight-line method. It provides for a decreasing or declining amount of depreciation expense for each year. Alternatively, it provides for "accelerated" depreciation, where depreciation expense is higher in the earlier years of an asset's life and lower in the later years of an assets life.

This (and other accelerated depreciation methods) is probably a technique that is more representative of the economic and functional obsolescence associated with the operation of a long-lived asset, but, like straight-line, you should not assume that this results in a book value equal to the fair market value of a fixed asset at any point in time. No method of depreciation achieves this objective. Instead, view sum-of-the-year's digits (SYD) it as an alternative to straight-line (SL) depreciation, and another systematic and rational method to attempt to match depreciation expense to the periods and revenues generated from long-lived assets.

To arrive at the denominator used for the SYD method begin with the estimated economic useful life, count backwards, and sum the years' digits (e.g., 5, 4, 3, 2, 1 or 5 + 4 + 3 + 2 + 1 = 15).[5] To arrive at the numerator begin with the estimated economic useful life of the asset and count backwards (e.g., 5, 4, 3, 2, and 1). The fraction of 100 percent of the depreciable base to be expensed each year is developed by combining the two (e.g., 5/15, 4/15, 3/15, 2/15, and 1/15).

The following adjusting journal entries would be made at the end of the first through fifth years to record annual depreciation expense under the sum-of-the-year's method:

[5] The following formula will produce the denominator, where n = the estimated economic useful life of the long-lived asset and n(n+1) ÷ 2 or, where n = 5, 5(5+1) ÷ 2 = 30 ÷ 2 = 15.

12/31/20X1	Depreciation Expense – Automobiles	$3,000	
	Accumulated Depreciation - Automobiles		$3,000
12/31/20X2	Depreciation Expense – Automobiles	$2,400	
	Accumulated Depreciation – Automobiles		$2,400
12/31/20X3	Depreciation Expense – Automobiles	$1,800	
	Accumulated Depreciation – Automobiles		$1,800
12/31/20X4	Depreciation Expense – Automobiles	$1,200	
	Accumulated Depreciation – Automobiles		$1,200
12/31/20X5	Depreciation Expense – Automobiles	$600	
	Accumulated Depreciation – Automobiles		$600

Recall that depreciation expense is an expense account, depreciation expense is recorded in the firm's income statement, and accumulated depreciation is a contra asset account and recorded in the firm's balance sheet.

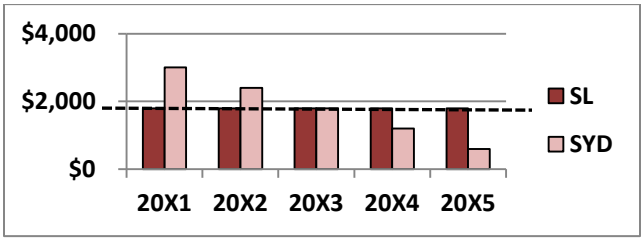
	A	B	C	D	E	F	G
			[A-B]		[CxD]		[A-F]
Year or Period	Cost	Salvage	Depreciable Base or Cost	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value
0	$10,000	$1,000	$9,000	0	$0	$0	$10,000
20X1	$10,000	$1,000	$9,000	5/15	$3,000	$3,000	$7,000
20X2	$10,000	$1,000	$9,000	4/15	$2,400	$5,400	$4,600
20X3	$10,000	$1,000	$9,000	3/15	$1,800	$7,200	$2,800
20X4	$10,000	$1,000	$9,000	2/15	$1,200	$8,400	$1,600
20X5	$10,000	$1,000	$9,000	1/15	$ 600	$9,000	$1,000
Total	$10,000	$1,000	$9,000	15/15	$9,000		

For the above table, as in the case of the straight-line example, each column has been given a letter heading (A through G) to illustrate relevant measures over the life of this automobile, purchased for $10,000, with an estimated salvage value of $1,000, for its entire, 5 year estimated useful life. Cost less salvage equals the depreciable base or cost [A-B]. The depreciable base or cost multiplied by the depreciation rate/fraction equals the amount of depreciation expense for each year [CxD]. Historical cost less the amount of accumulated depreciation equals the book value (or net book value or carrying value or net fixed asset value) of the asset at the end of each year [A-F]. Note that, as in the case of the straight-line method, the asset is not depreciated below $1,000, its salvage value [B].

At the end of each year, the section of the balance sheet representing fixed assets or property, plant and equipment would reflect the historical cost and accumulated depreciation and book value, under the sum-of-the-year's method, as follows:

	12/31/20X0	12/31/20X1	12/31/20X2	12/31/20X3	12/31/20X4	12/31/20X5
Property, plant & equipment	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
Less: Accumulated depreciation	$0	$3,000	$5,400	$7,300	$8,400	$9,000
Property, plant & equipment (net)	$10,000	$7,000	$4,600	$2,800	$1,600	$1,000

A Comparison of Straight-Line (SL) and Sum-of-the-Year's Digits (SYD) Methods
Again, the straight-line method is popular, because it is easy to understand and apply. It provides for a fixed amount of depreciation expense to be recorded on the firm's income statement for each year. The sum-of-the-year's digits method is an accelerated method of depreciation. The table, below, provides a comparison of the annual depreciation expense for the SL and SYD methods, where a dashed or broken line is used to more clearly see the difference between these two systematic and rational methods of recording depreciation expense:



The 200% or Double-Declining Balance Depreciation
The 200%[6] or double-declining balance (DDB) method of depreciation, like the sum-of-the-year's digits method (SYD) method, is an accelerated technique. It provides for larger depreciation expenses in the early years of a long-lived asset's life and smaller depreciation expenses in the later years of a long-lived asset's life. DDB is the most commonly used method of accelerated depreciation, and is the foundation for the modified accelerated cost recovery system (MACRS), a method required under U.S. tax law, and discussed in a later section.

Unlike the straight-line (SL) and SYD methods, the DDB method does not, first, reduce the depreciable base by salvage value. However, the DDB method switches from 200% of the SL rate (e.g., 20% under SL multiplied by 200% equals 40%) to the SL method, including a reduction of salvage value, half-way[7] through the estimated economic useful life of the long-lived asset. Salvage value is only considered once the switch to SL depreciation occurs.

The below table continues to use the same fact pattern, a $10,000 automobile with a 5 year life and $1,000 salvage value, but for the DDB method:

[6] Some accelerated methods do not use 200%. Popular alternatives include 125%, 150%, 175%, and so on. However, we traditionally teach the 200% method, assuming that a student can easily adapt to the use of an alternative percentage.
[7] Some introductory financial accounting texts do not strictly adhere to this approach, but it is the approach used under U.S. tax law under MACRS, and the predominant technique for financial accounting.

Period	Depreciation Expense	Book Value	Computational Notes
20X0		$10,000	
20X1	$4,000	$8,200	$10,000x(20%x200%)=$4,000
20X2	$2,400	$6,400	$10,000–4,000=$6,000x(20%x200%)=$2,400
			2 ½ YEARS IS HALF OF THE LIFE OF THE 5 YEAR ASSET SWITCH TO STRAIGHT-LINE DEPRECIATION FOR YEAR 3
20X3	$867	$4,600	$10,000–($4,000+$2,400)=$3,600–$1,000=$2,600÷3=$867
20X4	$867	$2,800	Same as period 3 (rounded)
20X5	$866	$1,000	Same as period 3 (rounded)
Total	$9,000		

Note the switch to straight-line depreciation, beginning with the 3rd year, or nearly half way through the asset's 5 year life. At the end of the 2nd year, the asset has a carrying or book value of $3,600 ($10,000 historical cost less $6,400 in accumulated depreciation). Straight-line depreciation requires that salvage value, first, be deducted, in arriving at the asset's depreciable base. Therefore, $2,600 ($3,600 less $1,000 salvage value) remains to be depreciated over the remaining 3 year life of the automobile.

Below are the adjusting journal entries that would be made, using the DDB method of depreciation:

12/31/20X1	Depreciation Expense – Automobiles	$4,000	
	Accumulated Depreciation - Automobiles		$4,000

12/31/20X2	Depreciation Expense - Automobiles	$2,400	
	Accumulated Depreciation - Automobiles		$2,400

12/31/20X3 & 12/31/20X4	Depreciation Expense - Automobiles	$867	
	Accumulated Depreciation - Automobiles		$867

12/31/20X5	Depreciation Expense - Automobiles	$866	
	Accumulated Depreciation - Automobiles		$866

Again, depreciation expense is an expense account and this expense is recorded in the firm's income statement; accumulated depreciation is a contra asset account and recorded in the firm's balance sheet.

Again, headings are used in the same tabular format (A through G) to illustrate relevant measures over the life of this automobile, purchased for $10,000, with an estimated salvage value of $1,000, for its entire, 5 year estimated useful life, but under the DDB method of depreciation. Cost less salvage equals the depreciable base or cost [A-B]. The depreciable base or cost multiplied by the depreciation rate equals the amount of depreciation expense for each year [CxD]. Historical cost less the amount of accumulated depreciation equals the book value (or net book value or carrying value or net fixed asset value) of the asset at the end of each year [A-F]. Note that the asset is not depreciated below $1,000, its salvage value [B].

	A	B	C	D	E	F	G
			[A-B]		[CxD]		[A-F]
Year or Period	Cost	Salvage	Depreciable Base or Cost	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value
0	$10,000	$0	$10,000	0	$0	$0	$10,000
20X1	$10,000	$0	$10,000	40%	$4,000	$4,000	$6,000
20X2	$10,000	$0	$6,000	40%	$2,400	$6,400	$3,600
20X3	$10,000	$1,000	$2,600	33 1/3%	$ 867	$7,267	$2,733
20X4	$10,000	$1,000	$1,733	33 1/3%	$ 867	$8,134	$1,866
20X5	$10,000	$1,000	$ 866	33 1/3%	$ 866	$9,000	$1,000
Total	$10,000	$1,000	$9,000		$9,000		

At the end of each year, the section of the balance sheet representing fixed assets or property, plant and equipment would reflect the historical cost and accumulated depreciation and book value, under the 200% or double-declining balance method, as follows:

	12/31/20X0	12/31/20X1	12/31/20X2	12/31/20X3	12/31/20X4	12/31/20X5
Property, plant & equipment	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
Less: Accumulated depreciation	$0	$4,000	$6,400	$7,267	$8,134	$9,000
Property, plant & equipment (net)	$10,000	$6,000	$3,600	$2,733	$1,866	$1,000

Alternatively, in this case, we could have continued to use the 200% or double-declining balance rate of 40%,[8] but we would have to exercise caution, in the 5th year, to avoid depreciating the asset below salvage value:

	A	B	C	D	E	F	G
			[A-B]		[CxD]		[A-F]
Year or Period	Cost	Salvage	Depreciable Base or Cost	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value
0	$10,000	$0	$10,000	0	$0	$0	$10,000
20X1	$10,000	$0	$10,000	40%	$4,000	$4,000	$6,000
20X2	$10,000	$0	$6,000	40%	$2,400	$6,400	$3,600
20X3	$10,000	$0	$2,600	40%	$1,440	$7,840	$2,160
20X4	$10,000	$0	$1,733	40%	$ 864	$8,704	$1,296
20X5	$10,000	$1,000	$ 866	Remainder	$ 296	$9,000	$1,000
Total	$10,000	$1,000	$9,000		$9,000		

In this latter case, the section of the balance sheet representing fixed assets or property, plant and equipment would reflect the historical cost and accumulated depreciation and book value, under the 200% or double-declining balance method, as follows:

	12/31/20X0	12/31/20X1	12/31/20X2	12/31/20X3	12/31/20X4	12/31/20X5
Property, plant & equipment	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
Less: Accumulated depreciation	$0	$4,000	$6,400	$7,840	$8,704	$9,000
Property, plant & equipment (net)	$10,000	$6,000	$3,600	$2,160	$1,296	$1,000

The Modified Accelerated Cost Recovery System – U.S. Tax Law

The modified accelerated cost recovery system (MACRS) is modified ACRS, where ACRS[9] (for assets placed in service from 1982-1986) and MACRS[10] (for assets placed in service after 1986) are both tax-based methods of depreciation, but they are also very similar to the double-declining balance method used for financial accounting purposes. In some cases, the differences between the two are so immaterial and insignificant that a firm will choose to use MACRS for both tax and financial accounting purposes, disclosing this fact in their summary of significant accounting policies.

As the name suggests, both ACRS and MACRS provide for total "cost recovery." There is, therefore, no salvage value to estimate. Therefore, the salvage value of $1,000 in the fact pattern used in this chapter would have been ignored for the purpose of annual depreciation expense computations under ACRS (1982 through 1986) and continues to

[8] Again, this would represent a departure from standard practices, including those employed under the U.S. tax system (MACRS).
[9] Enacted by Congress as part of the Economic Recovery Tax Act of 1981 (ERTA81).
[10] Enacted by Congress as part of the Tax Reform Act of 1986 (TRA86).

be ignored under MACRS, as the total cost is recovered through these depreciation methods.[11]

MACRS maintains mandatory or statutory lives[12] for different classes of assets:

Property Class (in years)	Description
3	small tools, horses and research & development assets
5	automobiles, trucks, computers & peripherals and office machines
7	office furniture & fixtures, oil, agricultural & manufacturing equipment and railroad track
10	railroad cars, mobile homes, boilers and some public utility property
15	roads, shrubs and certain low-income housing
20	waste-water treatment plants & sewer systems
27.5	residential rental property
39	nonresidential rental property

MACRS depreciation provides for a *first year, half year modifying convention*.[13] While 200% or double-declining balance is used and a conversion to straight-line depreciation is applied half-way through the life of the asset (with total "cost recovery" or zero salvage value), only one-half of the first year's depreciation expense is deducted for the first year, and so on.[14] Effectively, this converts a 3-year asset to a 4-year depreciable life, a 5-year asset to a 6-year depreciable life, and a 7-year asset to an 8-year depreciable life, as the following table illustrates for 3-, 5- and 7-year life assets:

[11] Total "cost recovery" (the "CR" in ACRS and MACRS) eliminated taxpayer compliance-related administrative costs arising from arguments between taxpayers and Internal Revenue Service (IRS) agents, where a reduction in salvage value increases the annual depreciation expense (frequently the taxpayer's position, to reduce taxable income and, therefore, income tax) and an increase in salvage value decreases the annual depreciation expense (frequently the IRS agents' position, to increase taxable income and, therefore, income tax). The estimate of salvage value at the end of a long-lived asset was and remains a subjective matter, so total "cost recovery" eliminates the development and use of this subjective measure in the computation of annual depreciation expense.

[12] Statutory or "by statute" or "by law" suggests that, for tax purposes, the actual experience for any particular business or firm is irrelevant. For example, the statutory life for a business use automobile is 5 years, regardless of the actual experiences by the firm.

[13] Mid-quarter and mid-month conventions are required under MACRS in certain cases.

[14] There is an optional straight-line method available for tax purposes, but this involves an "election" for income tax purposes. Salvage value continues to be ignored under this elective alternative.

Year	3-year[15]		5-year[16]		7-year[17]	
1	33.33%	½ year	20.00%	½ year	14.29%	½ year
2	44.45%		32.00%		24.49%	
3	14.81%		19.20%		17.49%	
4	7.41%	½ year	11.52%		12.49%	
5			11.52%		8.93%	
6			5.76%	½ year	8.92%	
7					8.93%	
8					4.46%	½ year
Total	100.00%		100.00%		100.00%	

Using the same fact pattern used throughout this chapter, a $10,000, 5-year asset would be depreciated, under MACRS, but over a 6-year period, as follows:

[15] A 3-year asset would be depreciated at 33.33% under straight-line depreciation. Double-declining balance would increase depreciation expense for the first year to 66.66%, however, because only ½ of the first year's depreciation is deducted in the first year under the *first year, half year modifying convention*, one-half of this 66.66% results in depreciation expense for year 1 and the remainder of the first year's depreciation expense is applied as the first half of depreciation expense for year 2.

[16] A 5-year asset would be depreciated at 20% under straight-line depreciation. Double-declining balance would increase depreciation expense for the first year to 40%, however, because only ½ of the first year's depreciation is deducted in the first year under the *first year, half year modifying convention*, one-half of this 40% results in depreciation expense for year 1 and the remainder of the first year's depreciation expense is applied as the first half of depreciation expense for year 2.

[17] A 7-year asset would be depreciated at 14.29% under straight-line depreciation. Double-declining balance would increase depreciation expense for the first year to 28.58%, however, because only ½ of the first year's depreciation is deducted in the first year under the *first year, half year modifying convention*, one-half of this 28.58% results in depreciation expense for year 1 and the remainder of the first year's depreciation expense is applied as the first half of depreciation expense for year 2.

Year	5-year[18]	
1	$2,000	½ year
2	$3,200	
3	$1,920	
4	$1,152	
5	$1,152	
6	$576	½ year
Total	100.00%	

Generally, MACRS depreciation requires double-declining balance for 3-, 5-, 7-, and 10-year property, 150% declining balance[19] for 15- and 20-year property, and straight-line for 27.5- and 39-year property.

The following table summarizes the depreciation expense under the straight-line (SL), sum-of-the-year's digits (SYD) and double-declining balance (DDB) methods (both with and without a switch to SL after the 2nd year), for financial accounting purposes, and MACRS for tax accounting purposes:

[18] A 5-year asset would be depreciated at 20% under straight-line depreciation. Double-declining balance would increase depreciation expense for the first and second years to 40%, however, because only ½ of the first year's depreciation is deducted in the first year under the *first year, half year modifying convention*, one-half of this 40% results in depreciation expense for year 1 ($2,000) and the remainder of the first year's depreciation expense is applied as the first half of depreciation expense for year 2 ($2,000). The double-declining balance-based depreciation expense for year 2 would be $3,200 (i.e., $10,000 - $4,000 = $6,000 x 40% = $2,400 x ½ = $1,200). Therefore, ½ of double-declining balance-based depreciation expense from year 1 ($4,000 x ½ = $2,000) plus ½ of the double-declining balance-based depreciation expense for year 2 ($2,400 x ½ = $1,200) results in $3,200 ($2,000 + $1,200) for year 2, under MACRS, and so on.

[19] Declining balance (DB) techniques have a long history, and may also include 125% or 175% DB methods. In the case of the 150% DB method and the 5-year asset, for example, the first year's depreciation expense, before the application of any modifying convention, would be 150% of 20% or 30% for the first year, and so on. You can find some very detailed tables and applications of these tax-based depreciation methods at the IRS.GOV website, which contains detailed information beyond the scope intended for this financial accounting text and even many tax textbooks.

Period	SL	SYD	[SL Switch] DDB	[No SL Switch] DDB	MACRS
20X1	$1,800	$3,000	$4,000	$4,000	$2,000
20X2	$1,800	$2,400	$2,400	$2,400	$3,200
20X3	$1,800	$1,800	$867	$1,440	$1,920
20X4	$1,800	$1,200	$867	$864	$1,152
20X5	$1,800	$600	$866	$296	$1,152
20X6	$-0-	$-0-	$-0-	$-0-	$576
Total	$9,000	$9,000	$9,000	$9,000	$10,000

Units-of-Production (or Activity) Method

The straight-line method treats depreciation as though it is a purely fixed expense, without any variation from one period to another period. Alternatively, the units-of-production (activity) method treats depreciation as though it is a purely variable expense, varying with the use of the long-lived asset.

Salvage value is still deducted when arriving at the depreciable base under the units-of-production method of depreciation. This method is most popular with heavy equipment or aircraft, where an odometer-like measurement device tracks the number of miles or operating hours for the machinery. In our automobile case, we will assume that the firm has determined that a business-use automobile has an estimated economic useful life of 75,000 miles. If mileage is 10,000, 25,000, 20,000, 12,000, and 8,000 miles for years one through five, depreciation would be computed, as follows:

	A	B	C	D	E	F	G
			[A-B]		[CxD]		[A-F]
Year or Period	Cost	Salvage	Depreciable Base or Cost	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value
0	$10,000	$0	$9,000	-0-	$0	$0	$10,000
20X1	$10,000	$1,000	$9,000	10,000/75,000	$1,200	$1,200	$8,800
20X2	$10,000	$1,000	$9,000	25,000/75,000	$3,000	$4,200	$5,800
20X3	$10,000	$1,000	$9,000	20,000/75,000	$2,400	$6,600	$3,400
20X4	$10,000	$1,000	$9,000	12,000/75,000	$1,440	$8,040	$1,960
20X5	$10,000	$1,000	$9,000	8,000/75,000	$ 960	$9,000	$1,000
Total	$10,000	$1,000	$9,000	75,000/75,000	$9,000		

Depreciation – Some Key Points

The following table summarizes some key points relating alternative depreciation methods:

	SL	SYD	Units-of-Production or Activity	DDB	MACRS
Primarily used for	Financial	Financial	Financial	Financial	Tax
Salvage value deducted	Yes	Yes	Yes	Mid-Life	No
Cost behavior	Fixed	Mixed	Variable	Mixed	Mixed

Straight-line (SL), sum-of-the-year's digits (SYD), units-of-production or alternative activity techniques, and double-declining balance (DDB) are used for financial accounting purposes. The modified accelerated cost recovery system (MACRS) is very similar to double-declining balance, but with a first year, half year modifying convention. None-the-less, this tax method of depreciation is used by some firms for financial accounting purposes. They do this when the difference between the DDB and the MACRS is immaterial or insignificant. This is a matter of professional judgment.

Salvage value is deducted in the case of SL, SYD, and units-of-production of activity methods. Salvage value is not deducted in the case of DDB, at least not initially. Even under DDB, long-lived assets are not depreciated below salvage value. Under MACRS, "cost recovery" is complete, in that salvage value is not considered. This is administratively expedient, in that it avoids arguments between taxpayers and Internal Revenue Service agent auditors.

Straight-line is a purely fixed cost. Depreciation expense is the same for every period during the life of the asset. The units-of-production or activity method is purely variable. Depreciation expense varies, perfectly, as the consumption of the long-lived asset occurs. All other methods are mixed – both or neither purely fixed or variable.

Depreciation – Partial Year

Long-lived assets are purchased and placed in service or taken out of service and sold at times other than the beginning or end of a firm's calendar or fiscal year. For this reason, it is important to know how to compute depreciation expense and accumulated depreciation for periods of less than one full year.

Recall the fact pattern used throughout this chapter. An automobile with a 5 year life, a cost of $10,000, and a salvage value of $1,000 is purchased and placed in service on January 1, 20X1. Typically, under straight-line depreciation, we would expense $1,800 per year for five years.

If the firm prepared monthly financial statements, they would expense and accumulate additional depreciation of $150 ($1,800 ÷ 12) per month. If the firm prepared quarterly

financial statements, they would expense and accumulate additional depreciation of $450 ($1,800 ÷ 4) per quarter. If financial statements are to be prepared semi-annually they should expense and accumulate additional depreciation of $900 ($1,800 ÷ 2) every six months.

Depreciation – Changes in Estimates

For financial accounting purposes, the estimated economic useful life of a long-lived asset is an estimate. The salvage value of these long-lived assets also represents an estimate.

The useful life and salvage value for long-lived assets are both estimates. They were always estimates. They were always understood to represent estimates. Therefore, when a change in an estimate occurs, it is not applied retroactively. Instead, new information is used to modify estimates for current and future periods.

For example, using the same example used throughout this chapter, assume that the firm decided, after the second year of asset use, that the automobile will last 6 years, and have a salvage value of $1,500. Recall the straight-line depreciation schedule through the 2nd year:

	A	B	C	D	E	F	G
			[A-B]		[CxD]		[A-F]
Year or Period	Cost	Salvage	Depreciable Base or Cost	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value
0	$10,000	$1,000	$9,000	0%	$0	$0	$10,000
20X1	$10,000	$1,000	$9,000	20%	$1,800	$1,800	$8,200
20X2	$10,000	$1,000	$9,000	20%	$1,800	$3,600	$6,400

At the beginning of the 3rd year, the automobile has a book value of $6,400 and accumulated depreciation of $3,600. The book value, reduced by the newly computed salvage value of $1,500, is $4,900. This $4,900 will be depreciated over the remaining 4 years, at $1,225 per year. These changes in estimates are reflected in the below table:

	A	B	C	D	E	F	G
			[A-B]		[CxD]		[A-F]
Year or Period	Cost	Salvage	Depreciable Base or Cost	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value
0	$10,000	$1,000	$9,000	0%	$0	$0	$10,000
20X1	$10,000	$1,000	$9,000	20%	$1,800	$1,800	$8,200
20X2	$10,000	$1,000	$9,000	20%	$1,800	$3,600	$6,400
20X3	$10,000	$1,500	$8,500	25%	$1,225	$4,825	$5,175
20X4	$10,000	$1,500	$8,500	25%	$1,225	$6,050	$3,950
20X5	$10,000	$1,500	$8,500	25%	$1,225	$7,275	$2,725
20X6	$10,000	$1,500	$8,500	25%	$1,225	$8,500	$1,500

Depreciation – A More Fully Developed Chart of Accounts

At the beginning of this chapter, a chart of accounts, restricted to long-lived assets was presented. Below is a more fully developed illustration of a chart of accounts, where accumulated depreciation and depreciation expense accounts have been added:

Account Number	Account Title
150	Land
152	Land Improvements
153	Accumulated Depreciation – Land Improvements
154	Buildings
155	Accumulated Depreciation – Buildings
156	Automobiles
157	Accumulated Depreciation – Automobiles
158	Equipment
159	Accumulated Depreciation – Equipment
160	Furniture & Fixtures
161	Accumulated Depreciation – Furniture & Fixtures
553	Depreciation Expense – Land Improvements
555	Depreciation Expense – Buildings
557	Depreciation Expense – Automobiles
559	Depreciation Expense – Equipment
561	Depreciation Expense – Furniture & Fixtures

Patterns vary, but note that the fixed asset accounts end with an even number and accumulated depreciation or contra asset accounts end with an odd number (e.g., 152 and 153 for land improvements and related accumulated depreciation accounts, respectively). Also note that the expense accounts end with the same two numbers or suffix (e.g., 161 and 561 for accumulated depreciation and depreciation expense, respectively, for the furniture & fixtures accounts). There is no accumulated depreciation or depreciation account to relate to or be associated with the land account.

Property, Plant & Equipment:	
Land	$xxx
Land Improvements	$xxx
Buildings	$xxx
Automobiles	$xxx
Equipment	$xxx
Furniture & Fixtures	$xxx
Property, Plant & Equipment	$xxx
Less: Accumulated Depreciation	($xxx)
Property, Plant & Equipment (net)	$xxx

Additional Expenditures

After acquisition, an asset's operation, maintenance, repairs and improvements might have to be capitalized or expensed. Capitalizing the expenditure will result in a higher net income (or a lower net loss) when compared to expensing. Perhaps the best example of the inappropriate capitalization of expenditures is the WorldCom case, as follows:

> ***WorldCom had taken line costs — mostly fees associated with its use of third-party network services and facilities — and wrongly booked them as capital expenditures.***
>
> ***Such expenses must be immediately recognized in the period incurred, unlike expenditures which can legitimately be capitalized as assets and depreciated over their useful life. WorldCom's misrepresentation of these expenses led to an artificial inflation of its net income and EBITDA (earnings before interest, taxes, depreciation and amortization).***[20]

Capital expenditures (also known as *balance sheet expenditures*) represent additional costs producing benefits extending beyond the current period. Debited to property, plant & equipment or fixed asset accounts (or some other long-lived asset account), these expenditures increase or improve the type or amount of service provided by an asset (e.g., roof replacement, plant expansion, or major overhauls of machinery and equipment).

Revenue expenditures (also known as *income statement expenditures*) represent additional costs that do not materially or significantly extend the life of the long-lived asset or its productive capabilities beyond the current period (e.g., cleaning, repainting, and oil or lubricant changes). These include *ordinary repairs* (e.g., engine tune-ups and tire rotations on an automobile). For example, assume that an oil change for a company car was just completed at a cost of $40, and paid in cash:

[20] Available at <http://knowledge.wharton.upenn.edu/article/what-went-wrong-at-worldcom/>.

Repairs Expense	**$40**	
Cash		**$40**

Betterments and *extraordinary repairs* (also known as *improvements*) are capitalized and not immediately expensed. For example, an addition of square footage to a facility, or expansion, would not be expensed. It would be capitalized and depreciated. In the below case, assume that additional square footage was added to an existing building, at a cost of $50,000, and paid in cash:

Buildings	**$40**	
Cash		**$40**

This separate addition would be depreciated as a separate component, typically, using the same depreciation method and estimated useful life used by the firm for other, comparable assets.

Disposal of Plant Assets

Plant assets might be disposed of in a variety of ways for several reasons. These assets might be (1) discarded, (2) sold, or (3) exchanged. Generally,

1. Record depreciation expense and accumulated depreciation through the date of disposal.
2. Record the removal or extraction of the relevant plant asset(s) and accumulated depreciation balances at the date of disposal.
3. Record cash or other assets received or paid and related to the disposal process.
4. Record any gain or loss associated with the disposal.

Discarding Plant Assets

Firms discard plant assets when no longer useful and without any market value. For example, assume that a firm has an asset with a fully depreciated cost of $10,000, discarded on June 30, 2014:

Accumulated Depreciation – Plant Asset	**$10,000**	
Plant Asset		**$10,000**

In the above case, there is no gain or loss on the fully depreciated asset's disposal.

Assume, now, that the $10,000 asset is not fully depreciated. Assume that the asset, when placed in service, had a 10-year life, used straight-line deprecation, and had no salvage value. With 1 year remaining, the accumulated depreciation account balance was $9,000 on December 31, 2013. An additional $1,000 of depreciation expense was anticipated for the 2014 calendar year, but the asset was disposed of on June 30, 2014. The first step (from (1), above) is to record depreciation expense through June 30, 2014, as follows:

Depreciation Expense	**$500**	
Accumulated Depreciation		**$500**

Computations to determine the gain or loss follow:

	Cost	**$10,000**
Less:	**Salvage**	**$-0-**
Equals:	**Depreciable Base or Cost**	**$10,000**
Divided by:	**10 Year Life**	**÷ 10**
Equals:	**Annual Depreciation Expense**	**$1,000**
Divided by:	**Computation of Semi-Annual Depreciation Expense**	**÷ 2**
Equals:	**Semi-Annual Depreciation Expense**	**$500**

	Cost	**$10,000**
Less:	**Accumulated Depreciation through December 31, 2013**	**$9,000**
Equals:	**Carrying or Book Value at January 1, 2014**	**$1,000**

	Accumulated Depreciation through December 31, 2013	**$9,000**
Add:	**Semi-Annual Depreciation Expense through June 30, 2014**	**+ $500**
Equals:	**Accumulated Depreciation through June 30, 2014**	**$9,500**

	Cost	**$10,000**
Less:	**Accumulated Depreciation through June 30, 2014**	**$9,500**
Equals:	**Carrying or Book Value at June 30, 2014 date of Disposal**	**$500**

	Sales Price	**$-0-**
Less:	**Carrying or Book Value at June 30, 2014 date of Disposal**	**$500**
Equals:	**Loss on June 30, 2014 date of Disposal**	**$500**

The asset had a cost of $10,000. Salvage value was estimated at zero. It had an estimated life of 10 years. Straight-line depreciation was used.

After 9½ years the asset was disposed of. Accumulated depreciation, at the date of disposal, was $9,500. Therefore, at the date of disposal, the asset had a carrying or book value of $500 ($10,000 less $9,500). Since the asset had no economic value at the June 30, 2014, date of disposition, the asset was disposed of at a loss of the entire carrying or book value of $500. The journal entry to record the loss follows:

Accumulated Depreciation	**$9,500**	
Loss on Disposition of Plant Asset	**$500**	
Plant Asset		**$10,000**

The loss of $500 would be reported as an "other expense or loss" in the income statement. The loss on disposition is not part of "operations" or "operating activities."

Selling Plant Assets
Firms also sell plant assets. Using the same fact pattern from above, assume the asset is sold for $1,000 (at a gain or above book value), $500 (no gain or loss or at an amount equal to book value), and for $100 (at a loss or below book value), as follows:

Sale for $1,000 – above carrying or book value
Assume the firm receives $1,000 in cash for sale of the plant asset on June 30, 2014:

	Sales Price	$1,000
Less:	Carrying or Book Value at June 30, 2014 date of Disposal	$500
Equals:	Gain on June 30, 2014 date of Disposal	$500

The appropriate journal entry follows:

Accumulated Depreciation	$9,500	
Cash	$1,000	
Plant Asset		$10,000
Gain on Sale of Plant Asset		$500

Sale for $500 – at carrying or book value
Assume the firm receives $500 in cash for sale of the plant asset on June 30, 2014:

	Sales Price	$500
Less:	Carrying or Book Value at June 30, 2014 date of Disposal	$500
Equals:	Loss on June 30, 2014 date of Disposal	$-0-

The appropriate journal entry follows:

Accumulated Depreciation	$9,500	
Cash	$500	
Plant Asset		$10,000

Sale for $100 – below carrying or book value
Assume the firm receives $100 in cash for sale of the plant asset on June 30, 2014:

	Sales Price	$100
Less:	Carrying or Book Value at June 30, 2014 date of Disposal	$500
Equals:	Loss on June 30, 2014 date of Disposal	$400

The appropriate journal entry follows:

Accumulated Depreciation	**$9,500**	
Loss on Disposition of Plant Asset	**$400**	
Cash	**$100**	
Plant Asset		**$10,000**

Exchanging Plant Assets

Accounting for the exchange of plant assets is more complex – a topic typically covered in intermediate-level financial accounting courses. Exchanges of plant assets are classified into two categories: (1) those exchange with commercial substance and (2) those exchanges without commercial substance.

A single fact pattern will be used to illustrate how gains and losses are handled for transactions with and without commercial substance.

Assume that the asset exchanged cost $20,000. At the date of the exchange, this asset had accumulated depreciation of $12,000. Cash of $5,000 was paid to complete the asset exchange. The carrying or book value of the asset is $8,000. Therefore, the carrying or book value plus the cash are $13,000.

Two alternatives will be developed. In the first case, the market value of the asset received is $15,000, resulting in a gain of $2,000. In the second case, the market value of the asset received is $11,000, resulting in a loss of $2,000.

All of the above information is summarized in the following table:

		GAIN	LOSS
Market Value of Asset Received		$15,000	$11,000
Cost	$20,000		
Accumulated Depreciation	$12,000		
Carrying or Book Value	$8,000		
Cash	$5,000		
Carrying of Book Value of Assets Given	$13,000	$13,000	$13,000
Gain (Loss) on Exchange		$2,000	($2,000)

Keep the following in mind…

- Regardless of other components of the fact pattern, the cost of the old asset is $20,000, so this amount must be credited to the Plant Asset account.
- Regardless of other components of the fact pattern, the accumulated depreciation for the old asset is $12,000, so this amount must be debited to the accumulated depreciation account.
- Regardless of other components of the fact pattern, the cash given up for the exchange is $5,000, so this amount must be credited to the cash account.

Therefore, the only questions follow:

1. What is the gain, if any?
2. What is the loss, if any?
3. What is the carrying or book value of the new plant asset?

Exchanges of Plant Assets – WITH Commercial Substance
An exchange has commercial substance if the firm's future cash flows change as a result of the transaction. In these cases, a gain or loss is recorded based on the difference between the carrying or book value of the asset(s) given up and the fair market value of the asset(s) received.

The journal entry for an exchange of plant assets WITH commercial substance and a gain follows:

Accumulated Depreciation – Old	**$12,000**	
Plant Asset - New	**$15,000**	
Cash		**$5,000**
Plant Asset - Old		**$20,000**
Gain on Sale of Plant Asset		**$2,000**

The journal entry for an exchange of plant assets WITH commercial substance and a loss follows:

Accumulated Depreciation – Old	**$12,000**	
Plant Asset - New	**$13,000**	
Cash		**$5,000**
Plant Asset - Old		**$20,000**

Exchanges of Plant Assets - WITHOUT Commercial Substance
An exchange has no commercial substance if the firm's future cash flows do not change as a result of the transaction. In these cases, a gain or loss is not recorded. The book value of the asset(s) received is based on the carrying or book value of the asset(s) given up, as follows:

Accumulated Depreciation – Old	**$12,000**	
Plant Asset - New	**$13,000**	
Cash		**$5,000**
Plant Asset - Old		**$20,000**

Natural Resources are assets that are consumed when used (e.g., timber, mineral deposits and oil fields). Depletion involves the allocation of a natural resource to the period consumed.

For example, assume that land with mineral rights is purchased for $100,000. The land, a non-wasting asset, is worth $10,000. The geological engineers have estimated that

the coal, a natural resource found, through testing, to be available on the on the land, at 90,000 tons. Therefore, the cost allocated to the mineral reserves is $1 per ton. Assume that only 1 ton of coal is mined in the first month of operations, as follows:

Depletion Expense	**$1,000**	
Accumulated Depletion		**$1,000**

Intangible Assets – Cost and Amortization

Intangible assets lack physical existence and do not include financial instruments. They may be purchased or internally created.

Tangible assets are depreciated over their economic or useful life. Similarly, intangible assets are amortized over their limited life. An intangible asset with an indefinite life is not amortized, just as land is not depreciated.

Patents are granted by the U.S. Government and protect the rights of inventors, encouraging innovation. This exclusive right is for 20 years. When purchased, the cost is capitalized as an asset. Lawsuits to defend patents are also capitalized. Both differ from internal research and development costs incurred to develop a new invention or innovative process with economic value – these costs are expensed.

Assume that a patent is purchased from an external party at a cost of $10,000. Further assume that the patent has a remaining life of 10 years. At the end of each year, the following journal entry would be made to amortize the $10,000 cost and amount debited to the Patent (asset) account when the patent was purchased.

Amortization Expense – Patents	**$1,000**	
Accumulated Amortization – Patents		**$1,000**

Copyrights give the owner an exclusive right to publish and sell musical, literary or artistic work for the life of the creator plus 70 years. Costs are amortized over this or the shorter useful life. Copyright fees, if material or significant in dollar amount, are capitalized and amortized. If immaterial or insignificant, it is charged directly to an expense account.

Franchises and **licenses** represent rights to deliver a product or service under specified conditions. Examples include McDonald's and Pizza Hut. The costs of franchises and licenses are debited to an appropriate asset account and amortized over the life of the contract or agreement. If the life is indefinite, costs are not amortized.

Trademarks and **Trade** (or **Brand) Names** include unique symbols, names and brands to market products. Examples include Pepsi and Burger King. Exclusive use and ownership is established by registering with the U.S. Patent Office. The cost of developing, maintaining, or enhancing value is expensed. However, if purchased, the cost is debited to an asset account and amortized over its expected life. If the life is indefinite, costs are not amortized.

Goodwill is the dollar amount that cannot be identified by the fair market value of the net assets purchased. For example, assume that a firm is purchased for $100,000. The assets had a fair market value of $150,000 and the liabilities had a fair market value of $70,000 on the date of purchase. Therefore, a firm with net assets valued at $80,000 ($100,000 - $80,000) was purchased for $100,000. The difference – $20,000 – is goodwill. The slang term is "blue sky" (i.e., something intangible). Goodwill is an asset, but is not amortized. However, Goodwill must be tested, annually, for impairment in book or carrying value. This topic is covered in greater detail in intermediate and advanced financial accounting courses.
An example follows:

	Cash	$10,000
	Accounts receivable	$1,000
	Inventory	$5,000
	Property, plant & equipment	$15,000
	Total assets	$31,000
Less:	Liabilities	$6,000
Equals:	Net assets	$25,000
Less:	Cost	$30,000
Equals:	Excess of cost (Goodwill)	$(5,000)

In the above case, appraisals result in a value of $25,000 for all net assets of the firm purchased, but the purchase price is $30,000. The $5,000 difference is accounted for as goodwill, an intangible asset.

Leasehold is a term used to describe property rented under a contract. The lessor is the property owner and the lessee is the renter. Monthly payments are debited to a rent expense account. Chapter 10 introduces distinctions between capital and operating leases.

Leasehold Improvements include alterations or modifications to a leased property. They might include partitions (or walls), fixtures, and storefronts. These improvements might represent real or personal property and are amortized over the term of the lease.

Other Intangibles include convents not-to-compete. These are amortized over the life or term specified in the agreement.

Appendix A

Total Asset Turnover

Total asset turnover is really not unlike inventory turnover, covered in the appendix to chapter 5:

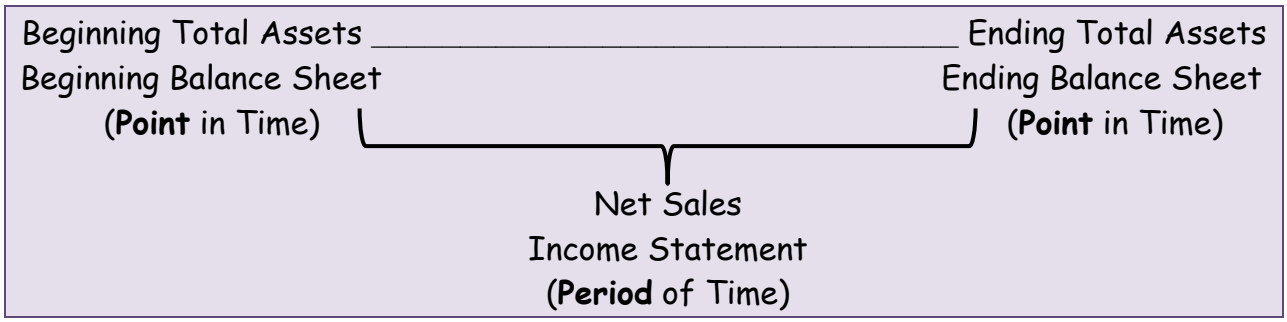
Inventory turnover = Cost of goods sold ÷ Average inventory

It is also comparable to the accounts receivable turnover measure covered in the appendix to chapter 7:

Accounts receivable turnover = Net sales ÷ Average accounts receivable (net)

The difference between these asset components (above) and their turnover rates is that total asset turnover, as the name suggests, includes both of these components and all other assets. As was the case with inventory turnover and accounts receivable turnover, total asset turnover uses the income statement measure in the numerator and the average of the beginning and ending inventory measures in the denominator, as follows:

Total asset turnover = Net sales ÷ Average total assets



Appendix B

The Wild Text:

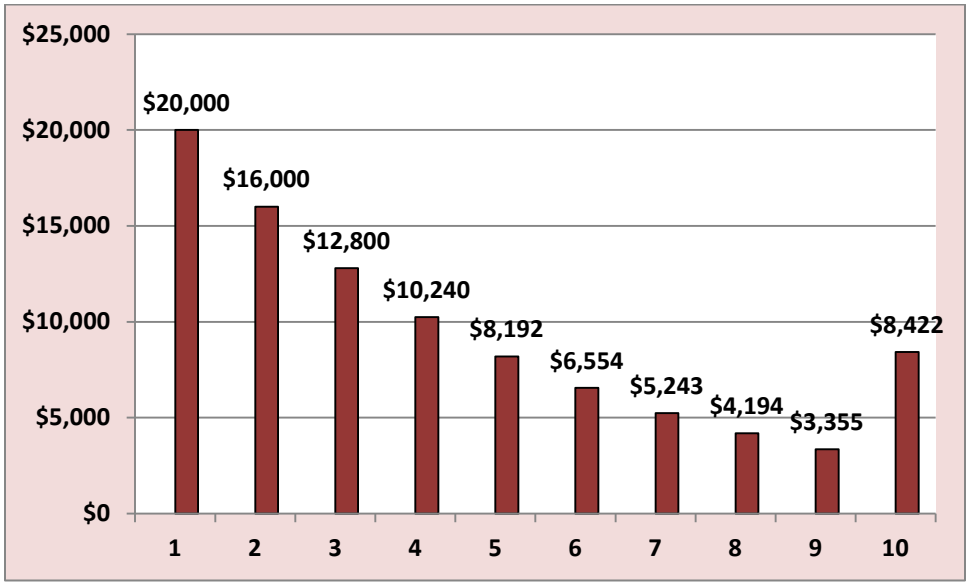
A Methodological Flaw

Some introductory texts contain technically incorrect methodologies, relying on later or intermediate courses to correct them for discipline majors. The below illustrates why the use of 200% or double-declining balance depreciation methods might require a switch to straight-line, as illustrated, correctly, in the case of MACRS, used by the IRS.

Assume that a firm purchased an asset at a cost of $100,000. They estimate a 10 year life and $5,000 salvage. Straight-line over 10 years would result in depreciation of 10 percent of the depreciable base (cost, under double-declining balance) each year. They apply the double-declining balance method, so this 10 percent would be doubled to 20 percent. They do not switch to straight-line depreciation at any point in the asset's life (see Exhibit 8.12 on page 333 of the 3rd edition for a methodologically comparable "plug"). The below table illustrates why the switch to straight-line might be desirable:

	A	B	C	D	E	F	G
			[A-B]		[CxD]		[A-F]
Year or Period	Cost	Salvage	Depreciable Base or Cost	Depreciation Rate	Depreciation Expense	Accumulated Depreciation	Book Value
0	$100,000	$5,000	$100,000	0	$0	$0	$100,000
1	$100,000	$5,000	$100,000	20%	$20,000	$20,000	$80,000
2	$100,000	$5,000	$100,000	20%	$16,000	$36,000	$64,000
3	$100,000	$5,000	$100,000	20%	$12,800	$48,800	$51,200
4	$100,000	$5,000	$100,000	20%	$10,240	$59,040	$40,960
5	$100,000	$5,000	$100,000	20%	$8,192	$67,232	$32,768
6	$100,000	$5,000	$100,000	20%	$6,554	$73,786	$26,214
7	$100,000	$5,000	$100,000	20%	$5,243	$79,028	$20,972
8	$100,000	$5,000	$100,000	20%	$4,194	$83,223	$16,777
9	$100,000	$5,000	$100,000	20%	$3,355	$86,578	$13,422
10	$100,000	$5,000	$100,000	20%	$8,422	$95,000	$5,000
Total					$95,000		

Note the significant "plug" required in the last year to fully depreciate the asset, clearly illustrated in the following graph, where the bars indicate the relative amount of depreciation expense for each year:



Note that depreciation expense is $8,422 in year 10 of the asset's life.

A comparable methodological flaw is contained in text homework exercise 8-5 and 8-13 (3rd edition) 8-4 and 8-8 (4th edition) and, perhaps, some others.

Chapter 9[1]

Accounting for Short-Term or Current Liabilities

Learning Objectives

- Define short-term and current liabilities.
- Define long-term and noncurrent liabilities.
- Distinguish between short-term and long-term liabilities.
- Describe the loan amortization schedule and its role in decomposing long-term liabilities into their current and noncurrent components.
- Prepare entries to account for note payable.
- Compute and record employee payroll withholdings or liabilities and their payment.
- Compute and record employer payroll expenses, liabilities and their payment.
- Describe FICA, FWT, SWT, FUTA and SUTA.
- Account for estimated liabilities, including health and retirement benefits, bonuses and warranties.
- Explain how to account for contingent liabilities.
- Compute the times interest earned ratio.
- Describe the process for accruing and paying estimated corporate income taxes.
- Provide an example of a timing difference resulting in a deferred income tax liability.

[1] Acknowledgement: An earlier version of this chapter was provided to all accounting faculty on March 15, 2014 and October 30, 2014, for review notes, comments, and recommendations for improvement. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

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A *liability* is a probably future payment of company assets or services, that the company is presently obligated to make, and resulting from past transactions or events. Critical factors are:

1. A past transaction or event.
2. A present obligation.
3. A future payment of assets or services.

No liability is reported when one or more of these characteristics are absent.

For example, wages become payable to employees only after work has been performed. The performance of work by an employee represents a past event, resulting in a present obligation, and requiring a future payment, on payday.

Liability Classification

Liabilities are classified as short-term or long-term. Alternatively, they may be referred to as current or noncurrent. Short-term or current liabilities are obligations requiring payment in one year or one operating cycle (e.g., wages), whichever is longer. Long-term or noncurrent liabilities are obligations requiring payment in more than one year (e.g., the noncurrent portion of a 30-year mortgage) or one operating cycle, whichever is longer. Generally, think in terms of one year or less for current or short-term classification.

Uncertainties Associated with Liabilities

Three important questions must be asked to reduce the uncertainties associated with accounting for liabilities, as follows:

1. Who gets paid?
2. When do they get paid?
3. How much do they get paid?

Known liabilities, also referred to as *definitely determinable liabilities*, include accounts payable, notes payable, sales taxes payable, salaries or wages payable, unearned revenues, and leases.

Current (*Short-Term*) Liabilities

Current liabilities include accounts payable, short-term notes payable, wages payable, warranty liabilities, lease liabilities, taxes payable, and unearned revenues.

Noncurrent (*Long-Term*) Liabilities

Noncurrent liabilities include long-term notes payable, warranty liabilities, lease liabilities, and bonds payable. It is common for some long-term liabilities to require a break down into both current and noncurrent components.

Current v. Noncurrent Liabilities – A Loan Amortization Schedule Example
To illustrate how a liability is decomposed into its current and noncurrent components for balance sheet presentation, assume that a firm borrows $10,000 for 18 months at 12 percent per year (1 percent per month). The money is borrowed at time period zero.

		12%				
	Payment	Interest	Principal	Balance	Current	Noncurrent
0				$10,000	$4,320	$5,680
1	$1,379	$1,200	$179	$9,821	$4,838	$4,983
2	$1,379	$1,179	$200	$9,621	$5,419	$4,202
3	$1,379	$1,154	$225	$9,396	$6,069	$3,327
4	$1,379	$1,128	$251	$9,145	$6,797	$2,347
5	$1,379	$1,097	$282	$8,863	$7,613	$1,250
6	$1,379	$1,064	$315	$8,547	$8,548	$0
7	$1,379	$1,026	$353	$8,194	$8,194	$0
8	$1,379	$983	$396	$7,798	$7,799	$0
9	$1,379	$936	$443	$7,355	$7,355	$0
10	$1,379	$883	$496	$6,859	$6,859	$0
11	$1,379	$823	$556	$6,303	$6,303	$0
12	$1,379	$756	$623	$5,680	$5,680	$0
13	$1,379	$682	$697	$4,983	$4,983	$0
14	$1,379	$598	$781	$4,202	$4,202	$0
15	$1,379	$504	$875	$3,327	$3,327	$0
16	$1,379	$399	$980	$2,347	$2,347	$0
17	$1,379	$282	$1,097	$1,250	$1,250	$0
18	$1,400	$150	$1,250	$0	$0	$0

At the date of the loan, the current portion of the $10,000 is $4,320 and the noncurrent portion is $5,680, as illustrated in the loan amortization schedule, below. Payments are $1,379 each month ($1,400 in the loan payoff month or month 18).

Note that the current and noncurrent portions represent principal, only. The interest on future payments has not been earned by the bank, so there is no present obligation without the passage of time (past transaction).

Accounts Payable
Accounts payable or trade accounts payable are amounts owed to suppliers for products or services purchased on credit. This material was introduced in Chapters 4 and 5.

Sales Taxes Payable
Nearly all states and many cities levy taxes on retail sales. Sales taxes are state as a percent of sales price. The seller collects sales taxes from customers when sales occur and remits these collections (often monthly) to the proper government agency. Until the

pay these collections to the proper government agency, they continue to record the liability as sales tax payable.

The journal entry to record a $5,000 cash sale, subject to a 6% sales tax follows:

3-Mar	Cash	$5,300	
	Sales		$5,000
	Sales Tax Payable		300
	To record cash sale and 6% sales tax.		

The journal entry to be made when the $300 sales tax is paid to the appropriate government agency follows:

31-Mar	Sales Tax Payable	$300	
	Cash		$300
	To record payment of sales tax.		

Unearned Revenues

Unearned revenues (or deferred revenues or collections in advance and prepayments) are amounts received in advance from customers for future products or services yet to be performed. For example, your prepayment of $100 for a concert not yet held would be accounted for, as follows:

5-Mar	Cash	$100	
	Unearned Ticket Revenue		$100
	To record sale of concert tickets.		

On March 15th, the concert takes place and the revenue is earned:

15-Mar	Unearned Ticket Revenue	$100	
	Ticket Revenue		$100
	To record concert ticket revenue earned.		

Any balance in unearned revenue account represents a liability, since the product or service has been paid for in advance, but not yet earned.

Short-Term (Current) Notes Payable

A *short-term note payable* is a formal, written promise to pay some specified amount on some future specified date within the longer of one year or the company's operating cycle. Most notes payable are interest bearing. These are negotiable instruments, so they can be transferred to another party through an endorsement. They can arise from a variety of transactions, including (1) replacement of an account payable with a note payable or (2) borrowings from a bank or financial institution, described below.

Replacing an Account Payable with a Note Payable

Assume that a creditor requires a customer or client to substitute an interest-bearing note payable for a past-due account payable. The Oehlers Corporation owes the Barndt Partnership $600 in accounts payable and negotiates a $100 cash payment and a $500 note payable, bearing interest at a rate of 12 percent, 60-day note, to replace the non-interest bearing account payable. The agreement and transaction takes place on March 15, and is recorded by Oehlers, as follows:

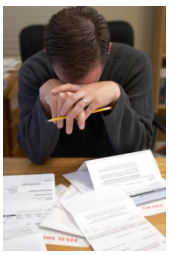
15-Mar	Account payable – Barndt	$600	
	Cash		$100
	Note payable - Barndt		500
	To record conversion of account payable to 60-day note payable at 12 percent.		

When the note comes due, Oehlers pays Barndt, as follows:

14-May	Note payable – Barndt	$500	
	Interest expense	10	
	Cash		$510
	To record payment of note and interest ($500 x 12% x 60/360).		

Signing a Note Payable for a Bank Loan

Assume a similar fact pattern, but Oehlers borrows $500 cash from a bank for 60 days at 12 percent interest. To record the cash receipt:



15-Mar	Cash	$500	
	Note payable – Bank		$500
	To record $500 borrowed from the bank for 60 days at 12 percent.		

When the principal and interest are paid, the following journal entry would be made:

14-May	Note payable – Bank	$500	
	Interest expense	10	
	Cash		$510
	To record payment of note and interest ($500 x 12% x 60/360).		

End-of-Period Accruals for Notes Payable

In both of the above cases, the borrowings occurred on March 15. If Oehlers wanted to prepare monthly financial statements or financial statement at the end of March, an adjusting journal entry would be required to accrue interest expense for the first 15 of the 60 days or term of the note from the bank loan, through month-end, as follows:

31-Mar	Interest expense	$2.50	
	Interest payable		$2.50
	To record 15/60 days of interest expense for 60-day, 12 percent notes payable.		

Recall that after the financial statements are prepared for March, the revenue and expense (nominal or temporary) accounts are closed out to the income summary account. Therefore, if Oehlers wanted to prepare monthly financial statements or financial statement at the end of April, an adjusting journal entry would be required to accrue interest expense for the next 30 of the 60 days or term of the note from the bank loan, through month-end, as follows:

30-Apr	Interest expense	$5.00	
	Interest payable		$5.00
	To record 30/60 days of interest expense for 60-day, 12 percent notes payable.		

The interest payable account, at the end of April, is, now, $7.50 ($2.50 plus $5.00).

On May 14, Oehlers would make the following journal entry to record payment of both principal and interest:

14-May	Note payable – Bank	$500.00	
	Interest payable	7.50	
	Interest expense	2.50	
	Cash		$510.00
	To record payment of note and interest ($500 x 12% x 60/360).		

Payroll Liabilities

Payroll taxes are withheld from an employee's gross pay by their employer. The employer must be forwarded to governments, periodically.

This is very similar to the procedure for sales taxes, covered earlier in this chapter. Amounts are withheld, liability account balances are established, and these liability balances are eliminated, when payments are made.

Payroll and Employee Payroll Taxes

Gross pay represents total compensation before deductions withheld by the employer for taxes. Employers are required to withhold employee contributions to Social Security, federal withholding and state withholding tax, at a minimum. If you have ever been employed, you know this, as gross pay is reduced by these taxes that are withheld, resulting in *net pay*, as follows:

	Gross pay		$XXX
less:	FICA payable	$XX	
less:	FWT payable	$XX	
less:	SWT payable	$XX	$XX
equal:	Net pay		$XX

The journal entry for basic salary payments, payroll deduction or amounts withheld, and net pay follows:

Salary expense (gross pay)	$XXX	
FICA payable		$XX
FWT payable		$XX
SWT payable		$XX
Cash (net pay)		$XX
To record employee payroll.		

Employee FICA Taxes

The entire history of Federal Insurance Contributions Act (FICA) tax rates follows:

Tax Year(s)	FICA	Tax Year(s)	FICA	Tax Year(s)	FICA	Tax Year(s)	FICA
1937-49	1.00%	1962	3.13%	1973-77	5.85%	1986-87	7.15%
1950-53	1.50%	1963-65	3.63%	1978	6.05%	1988-89	7.51%
1954-56	2.00%	1966	4.20%	1979-80	6.13%	1990-	7.65%
1957-58	2.25%	1967-68	4.40%	1981	6.65%		
1959	2.50%	1969-70	4.80%	1982-84	6.70%		
1960-61	3.00%	1971-72	5.20%	1985	7.05%		

Note that, over time, the percentage contributed has increased from 1 percent (1937 through 1949) to 7.65 percent (1990-). These rates are likely to rise, again, at some future point in time. Increased tax rates represent one solution to concerns that Social Security with "go broke."

FICA taxes are imposed on employees at a rate of 7.65 percent. It decomposes into a 6.2 percent OASDI (Old Age, Survivors and Disability Insurance) component and a 1.45 percent Medicare component. The OASDI component only applies to a wage base amount that is inflation-indexed each year. This 6.2 percent is not applied to any wages or salaries in excess of this wage base. Generally, since the amount received from Social Security upon retirement has a maximum or ceiling, the wage base also applies a wage base or maximum or ceiling on the amount to which this tax applies. The ceiling used to also apply to the Medicare component, but this wage base or ceiling was eliminated years ago.

Employer FICA Taxes

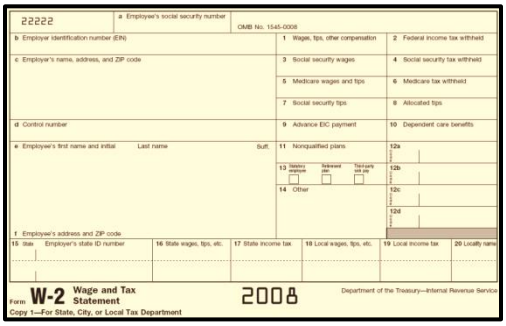
Employers also pay FICA taxes, at the same rate that employees pay. Therefore, the employee pays 6.2 percent and the employer pays 6.2 percent for a total of 12.4 percent for OASDI. The employee pays 1.45 percent and the employer pays 1.45 percent for a total of 2.9 percent Medicare. Therefore, employer and employee pay 12.4 percent plus 2.9 percent for a total of 15.3 percent in combined OASDI and Medicare taxes. FICA taxes, however, are only applied to a maximum wage base. The wage base is inflation-indexed (or increased), periodically. The entire history of FICA tax wage bases follows:

Tax Year	Wage Base	Tax Year	Wage Base	Tax Year	Wage Base	Tax Year	Wage Base	Tax Year	Wage Base	Tax Year	Wage Base
1937-50	$3,000	1974	$13,200	1982	$32,400	1990	$51,300	1998	$68,400	2006	$94,200
1951-54	$3,600	1975	$14,100	1983	$35,700	1991	$53,400	1999	$72,600	2007	$97,500
1955-58	$4,200	1976	$15,300	1984	$37,800	1992	$55,500	2000	$76,200	2008	$102,000
1959-65	$4,800	1977	$16,500	1985	$39,600	1993	$57,600	2001	$80,400	2009	$106,800
1966-67	$6,600	1978	$17,700	1986	$42,000	1994	$60,600	2002	$84,900	2010	$106,800
1968-71	$7,800	1979	$22,900	1987	$43,800	1995	$61,200	2003	$87,000	2011	$106,800
1972	$9,000	1980	$25,900	1988	$45,000	1996	$62,700	2004	$87,900	2012	$110,100
1973	$10,800	1981	$29,700	1989	$48,000	1997	$65,400	2005	$90,000	2013	$113,700

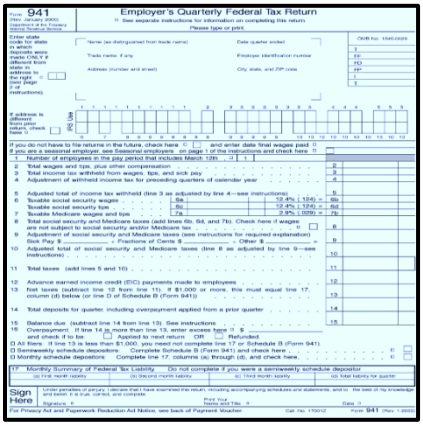
The FICA wage base for 2014 is $117,000. In addition, there is an additional 0.09% Medicare tax up to a new, additional Medicare wage base of $200,000.

Employee Income Taxes

In additional to Social Security taxes, the employee has the employer withhold Federal withholding taxes (FWT) and state withholding taxes (SWT). These amounts are reported to the employee on a Form W-2 and the employee uses this form to file his or her Form 1040 and state income tax forms to determine any tax liability or refund. You may have received a Form W-2 from prior employers. An example of a Form W-2 is provided.



The employer files tax forms when sending amounts withheld from employees for FICA and FWT. Internal Revenue Service (IRS) Form 941 is filed quarterly with the IRS, by the employer. It summarizes combined FWT and FICA tax deposits made to the IRS. FWT is based on a Form W-4, filed by the employee with the employer. The employee reports the number of exemptions to the



employer and the employer uses tables (Circular E) to develop the amount recommended for withholding by the IRS. Effectively, these tables annualize employee earnings and "back into" the amount to be withheld by each employee on this pay-as-you-go (PAYGO) system. An example of a Form 941 is provided.

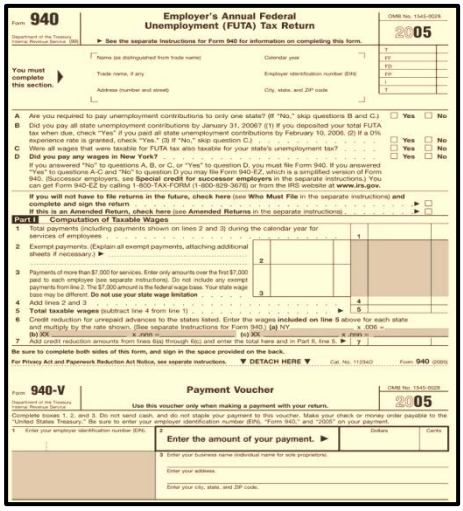
Employer Payments of Amounts Withheld

When employers make payments to the IRS for FICA and FWT and to the state for SWT, the liability established for these amounts withheld is eliminated, as follows:

FICA payable	$XX	
FWT payable	$XX	
SWT payable	$XX	
Cash (net pay)		$XX
To record payment of employee payroll taxes withheld.		

Other Employer Payroll Taxes

In additional to the taxes withheld from the employee's gross pay, and the matching Social Security taxes that employers pay, employers pay Federal Unemployment Taxes (FUTA) and State Unemployment Taxes (SUTA). Again, the federal portion is sent and reported to the IRS (Form 940), while a similar process is followed for state payments and forms. The SUTA rates for states vary, and some states also require employee contributions for unemployment. The unemployment benefits paid by each state also varies. The basic journal entry for the employer's portion of FICA, FUTA and SUTA follows:


Form 940 Employer's Annual Federal Unemployment (FUTA) Tax Return 2005

Form 940-V Payment Voucher 2005

Payroll taxes	$XXX	
FICA payable		$XX
FUTA payable		$XX
SUTA payable		$XX
To record employer payroll taxes.		

When these employer contributions are paid to the IRS and states, the following journal entry is made:

FICA payable (employer)	$XX	
FUTA payable	$XX	
SUTA payable	$XX	
Cash		$XX
To record payment of payroll taxes.		

A Comprehensive Example

Assume that an employee earns gross pay of $1,000 during the first pay period of a new calendar year. Federal withholding is at a rate of 15 percent and state withholding is at a rate of 5 percent. The employer must also pay FUTA at a rate of 0.8 percent and SUTA at a rate of 2.5 percent, per year, per employee, for the first $7,000 of wages earned in the calendar year.

Employee:				
Gross	FICA	FWT	SWT	Net
$1,000.00	$76.50	$150.00	$50.00	$723.50
Employer:				
	FICA	FUTA	SUTA	Total
	$76.50	$8.00	$25.00	$109.50

Some employers prefer to break the FICA into and account for the OASDI and Medicare components separately, since the wage base applies only to the OASDI component, as follows:

Employee:					
Gross	OASDI	Medicare	FWT	SWT	Net
$1,000.00	$62.00	$14.50	$150.00	$50.00	$785.50
Employer:					
	OASDI	Medicare	FUTA	SUTA	Total
	$62.00	$14.50	$8.00	$25.00	$109.50

The journal entries for both employee and employer follow:

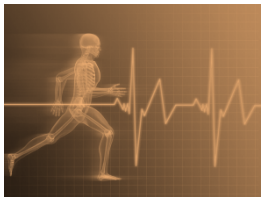
Salary expense (gross pay)	$1,000.00	
OASDI payable (6.2%)		$62.00
Medicare payable (1.45%)		$14.50
FWT payable		$150.00
SWT payable		$50.00
Cash (net pay)		$785.50
To record employee payroll.		

Payroll taxes	$109.50	
OASDI payable (6.2%)		$62.00
Medicare payable (1.45%)		$14.50
FUTA payable (0.8%)		$8.00
SUTA payable		$25.00
To record employer payroll taxes.		

Estimated Liabilities

Estimated liabilities include health and pension benefits, vacation benefits, bonus plans, warranty liabilities, and contingent liabilities. These are known obligations of an uncertain amount that can be reasonably estimated.

Health and Pension Benefits



Many firms provide employees with medical insurance and retirement benefits. Employees may or may not contribute to these benefits. The entry to accrue the employer contribution to these employee benefits follows:

Employee benefits expense	$XXX	
Employee medical insurance payable		$XXX
Employee retirement program payable		$XXX
To record employee benefits.		

Vacation Benefits

Many firms pay vacation benefits or provide for paid absences. Assume, for example, that a salaried employee earns 2 weeks of paid vacation per year. Therefore, for an employee earning $41,600 per year, the vacation pay for 50 weeks earns 2 weeks of vacation, at a cost of $32 per week to the firm, as follows:

	Annual salary	$41,600	$41,600	
divided by:	Weeks	÷52	÷50	
equals:	Cost of 1 week of vacation	$800	$832	-$32

The weekly vacation pay would be recorded, as follows:

Vacation benefits expense	$32	
Vacation benefits payable		$32
To record weekly vacation pay accrued.		

Vacation benefits expense in an operating expense and vacation benefits payable is a current liability. When the employee takes the vacation, vacation benefits payable account balances are reduced with a debit and cash is credited.

Bonus Plans

Some firms provide bonuses to employees. Bonuses may be based on the firm's net income. Assume, for example, that a firm pays employees a bonus of 10 percent of net income, where net income is expected to approximate $220,000. The computation of the anticipated bonus expense follows:

B =	0.10 ($220,000 - B)
	$22,000 - 0.10B
1.1B =	$22,000
B =	$20,000

The year-end journal entry to record this employee benefit follows:

Employee bonus expense	$20,000	
Employee bonus payable		$20,000
To record projected bonus cost.		

Warranty Liabilities

A warranty obligates a seller to replace or correct a product or service for a specified time period. The seller uses anticipated warranty costs, based on past experience, to estimate the probability and amount of warranty expense. This expense (debit) is matched to the period in which the sale occurs (matching principle) and the liability (credit) is recorded.

For example, assume that a used automobile is sold for $24,000, with a two-year or 24,000 mile warranty. Based on past experience, the dealer anticipates warranty cost to approximate 5 percent of the car's sales price ($24,000 x 5%) or $1,200. The dealer would record the below:

Warranty expense	$1.200	
Estimated warranty liability		$1.200
To record estimated warranty expense.		

To further illustrate, assume that the customer returns the automobile for replacement of a failed part - work covered under the warranty, as follows:

Estimated warranty liability	$500	
Auto parts inventory		$500
To record cost of warranty repairs.		

The above reduces the liability associated with this sale from $1,200 to $700. Additional warranty work may or may not be required for this sale, but, over time, management expertise should improve and estimated warranty expenses, booked at

the time of sale, should be very, very close to the actual warranty work required over the warranty period.

Contingent Liabilities

A contingency is an outcome that is dependent on some event. A contingent liability is an obligation that is dependent on a future outcome arising from a past transaction or event. The future outcome is uncertain. Lawsuits and litigation related outcomes represent an excellent example where accounting for these contingent liabilities must be considered.

The accounting treatment for a contingent liability is dependent on the likelihood of the outcome, where the firm might have to (1) record the liability, (2) disclose the contingent liability in the notes to the financial statements, or (3) disclose nothing, as follows:

Future event is	Amount is	Action to take
Probable	Estimable	Record liability
	Not Estimable	Disclose in notes
Possible		Disclose in notes
Remote		No disclosure

Conditions for the 3 possible accounting treatments for a contingent liability follow:

- If the future event is (1) probably (likely) and the amount can be reasonably quantified or estimated, record the liability (e.g., warranties, vacation pay and income taxes). Of course, if the amount cannot be reasonably quantified or estimated, you have no measure or amount to record, but can still disclose the contingent liability in the note to the financial statements.
- If the future event is (2) possible (could occur), disclose the contingent liability in the note to the financial statements.
- If the future event is (3) remote (unlikely), do not record the amount or disclose the contingent liability in the note to the financial statements.

Reasonably possible contingent liabilities (see above) require application of the *full-disclosure principle* of accounting. Liabilities and loss contingencies can include environmental damages (e.g., the oil spills caused by British Petroleum or Exxon), tax assessments, insurance losses, and government investigations.

Appendix A

Times Interest Earned Ratio

Interest expense is generated from current and non-current portions of notes and bonds payable. The underlying debt and the required, periodic payments of interest represent a risk to the firm. The risk is that of being unable to make an interest payment when due.

Assume, for example, that we have to pay 10% per year, semi-annually, for $1,000,000 in corporate bonds. Payments of $50,000 must be made on January 1 and July 1 each and every year, until the bonds are retired. This expense is fixed, while sales and gross profits generated from sales are variable. If sales decline, gross profits decline. At some point, declining sales and related gross profits to decline to a point where the firm is unable to make its fixed interest expense payments.

Because interest payments are fixed and sales and gross profits from sales are variable, the time interest earned ratio has been developed to provide a measure of the risk associated with declining sales. The formula follows:

Times interest earned = Income before interest expense and income taxes ÷ Interest expense

The following table provides some examples of the impact of variable sales and expenses, in the form of income before interest, on the times interest earned ratio:

	Case 1	Case 2	Case 3
Sales	$200	$400	$600
Expenses (variable)	$150	$300	$450
Income before Interest	$50	$100	$150
Interest expense (fixed)	$20	$20	$20
Net income	$30	$80	$130
Times interest earned	2.5	5.0	7.5

Appendix B

Corporate Income Taxes

Corporations pay income taxes. Like individuals, corporations must pay taxes as the taxable year progresses, also referred to pay-as-you-go or PAYGO. They make these payments in the form of estimated tax payments. Estimated tax payments for corporations are made under what are referred to as *safe harbor* rules. As long as corporations follow these rules and make these minimum estimated tax payments, they are "safe" from penalties for late payment.[2]

Below is an example of the application of accrual accounting and the matching principle and periodicity assumption, where a firm accrues the amount they anticipate for corporate income taxes and the end of each of the first three months of their calendar year operations, as follows":

31-January	Income tax expense	$500	
	Income taxes payable		$500
	To record the accrual of January income taxes.		

28-February	Income tax expense	$1,500	
	Income taxes payable		$1,500
	To record the accrual of February income taxes.		

31-March	Income tax expense	$750	
	Income taxes payable		$750
	To record the accrual of March income taxes.		

The firm pays estimated corporate income taxes for the first quarter on the due date of April 15, as follows:

15-April	Income taxes payable	$2,750	
	Cash		$2,750
	To record the payment of estimated taxes for the first quarter.		

[2] Individuals with income from sources other than wages or salaries are also required to make estimated tax payments under PAYGO and have comparable *safe harbor* rules to avoid late payment penalties.

Deferred income tax liabilities or deferred income tax assets can arise when a corporation legitimately uses one accounting method for tax accounting purposes and a different accounting method for financial accounting purposes. The following table is used to illustrate:

	Year 1	Year 2	Year 3	Year 4
Asset Cost	$10,000	$10,000	$10,000	$10,000
MACRS Depreciation	33.33%	44.44%	14.81%	7.41%
Tax (MACRS)	$3,333	$4,444	$1,481	$741
Financial (GAAP)	$2,500	$2,500	$2,500	$2,500
Depreciation Expense Timing Difference	$833	$1,944	-$1,019	-$1,759
Tax Rate	40%	40%	40%	40%
Deferred Tax	$333	$778	($408)	($704)
Cumulative Deferred Tax	$333	$1,111	$704	($0)

Assume that a firm purchases an asset for $10,000. For financial accounting purposes, the firm decides to depreciate the asset using straight-line depreciation over 4 years, and further assumes that the salvage value of the asset will be zero at the end of its 4 year life. Under tax law, however, the asset must be depreciated using the Modified Accelerated Cost Recovery System known as MACRS.

The above table summarizes the *timing* differences arising from the use of these different accounting methods, where the depreciation expense under MACRS is $3,333 for year 1, and the depreciation expense under GAAP is $2,500 for year 1. The difference in depreciation expense is $833 higher on the corporation's tax return and results in the deferral of 40% tax on this amount or $333. An additional deferral of tax in the amount of $778 occurs in year 2. During year 3 and 4, this condition reverses and the cumulative deferred tax is zero by the end of the 4 year life of the asset.

Notice that the tax is not eliminated through the use of different methods of accounting for the depreciation of this asset. It is only deferred. This deferral must be "booked" to the financial statements so that liabilities are not understated.

Appendix C

Historical U.S. Corporate Income Taxes Rates

A summary of the entire history of U.S. corporate income tax rates follows:

Year	Rate Brackets or Exemptions	Rate(a) (Percent)
1909-1913	$5,000 exemption	1
1913-1915	No exemption after March 1, 1913	1
1916	None	2
1917	None	6
1918	$2,000 exemption	12
1919-1921	$2,000 exemption	10
1922-1924	$2,000 exemption	13
1925	$2,000 exemption	13
1926-1927	$2,000 exemption	14
1928	$3,000 exemption	12
1929	$3,000 exemption	11
1930-1931	$3,000 exemption	12
1932-1935	None	14
1936-1937	First $2,000	8
	Over $40,000	15
1938-1939	First $25,000	12.5-16
	Over $25,000	19 (b)
1940	First $25,000	14.85-18.7
	$25,000 to $31,964.30	38
	$31,964.30 to $38,565.89	37
	Over $38,565.89	24
1941	First $25,000	21-25
	$25,000 to $38,461.54	44
	Over $38,461.54	31
1942-1945	First $25,000	25-29
	$25,000 to $50,000	53
	Over $50,000	40
1946-1949	First $25,000	21-25
	$25,000 to $50,000	53
	Over $50,000	38

1950	First $25,000 (Normal Rate)	23
	Over $25,000 (Add Surtax of 19%)	42
	Excess Profits Tax	30
1951	First $25,000 (Normal Rate)	28.75
	Over $25,000 (Add Surtax of 22%)	50.75
	Excess Profits Tax	30
1952	First $25,000 (Normal Rate)	30
	Over $25,000 (Add Surtax of 22%)	52
	Excess Profits Tax	30
1953-1963	First $25,000 (Normal Rate)	30
	Over $25,000 (Add Surtax of 22%)	52
1964	First $25,000 (Normal Rate)	22
	Over $25,000 (Add Surtax of 28%)	50
1965-1967	First $25,000 (Normal Rate)	22
	Over $25,000 (Add Surtax of 26%)	48
1968-1969	First $25,000 (Normal Rate)	22
	Over $25,000 (Add Surtax of 26%)	48
	With 10% Surcharge	
	First $25,000 (Normal Rate)	24.20
	Over $25,000 (Add Surtax of 26%)	52.80
1970	First $25,000 (Normal Rate)	22
	Over $25,000 (Add Surtax of 26%)	48
	With 2.5% Surcharge (c)	
	First $25,000 (Normal Rate)	22.55
	Over $25,000 (Add Surtax of 26%)	49.20
1971-1974	First $25,000 (Normal Rate)	22
	Over $25,000 (Add Surtax of 26%)	48
1975-1978	First $25,000 (Graduated Normal Rate)	20
	Next $25,0000 (Graduated Normal Rate)	22
	Over $50,000 (Add Surtax of 26%)	48
1979-1981 (d)	First $25,000	17
	$25,000 to $50,000	20
	$50,000 to $75,000	30
	$75,000 to $100,000	40
	Over $100,000	46
1982	First $25,000	16
	$25,000 to $50,000	19
	$50,000 to $75,000	30
	$75,000 to $100,000	40
	Over $100,000	46
1983-1984	First $25,000	15
	$25,000 to $50,000	18
	$50,000 to $75,000	30
	$75,000 to $100,000	40
	Over $100,000	46
1985-1986	First $25,000	15
	$25,000 to $50,000	18

	$50,000 to $75,000	30
	$75,000 to $100,000	40
	$100,000 to $1,000,000	46
	$1,000,000 to $1,405,000 (e)	51
	Over $1,405,000	46
1987(f)-1993	First $50,000	15
	$50,000 to $75,000	25
	$75,000 to $100,000	34
	$100,000 to $335,000 (g)	39
	Over $335,000	34
1994-	First $50,000	15
	$50,000 to $75,000	25
	$75,000 to $100,000	34
	$100,000 to $335,000 (g)	39
	$335,000 to $10,000,000	34
	$10,000,000 to $15,000,000	35
	$15,000,000 to $18,333,333 (h)	38
	Over $18,333,333	35

(a) In addition to the rates shown, certain types of 'excess profits' levies were in effect in 1917-1921 and 1933-1945.

(b) Less adjustments: 14.025% of dividends received and 2.5% of dividends paid.

(c) The Tax Reform Act of 1969 extended the Surcharge at a 5 percent rate from January 1, 1970 through June 1, 1970. On an annualized basis, the Surcharge would be 2.5 percent.

(d) The Revenue Act of 1978 repealed the corporate normal tax and surtax and in their place imposed a graduated rate structure with five brackets.

(e) The Deficit Reduction Act of 1984 placed an additional 5 percent to the tax rate in order to phase out the benefit of the lower graduated rates for corporations with taxable income between $1,000,000 and 1,405,000. Corporations with taxable income above $1,405,000, in effect, pay a flat marginal rate of 46 percent.

(f) Rates shown effective for tax years beginning on or after July 1, 1987. Taxable income before July 1, 1987 was subject to a two tax rate schedule or a blended tax rate.

(g) An additional 5 percent tax, not exceeding $11,750, is imposed on taxable income between $100,000 and $335,000 in order to phase out the benefits of the lower graduated rates.

(h) An additional 3 percent tax, not exceeding $100,000, is imposed on taxable income between $15,000,000 and $18,333,333 in order to phase out the benefits of the lower graduated rates.

Source: Treasury Department; Commerce Clearing House (CCH); Tax Foundation

Chapter 10[1]

Accounting for Long-Term or Non-Current Liabilities

Learning Objectives

- Describe the varying forms of debt financing and bonds.
- Prepare a loan amortization schedule for a long-term note payable.
- Prepare journal entries to account for notes payable.
- Explain the advantages and disadvantages of stock versus debt financing.
- Prepare journal entries to record bond issues and bond interest payments.
- Prepare bond amortization schedules and record amortization of bond premium and bond discount.
- Value bonds issued at par, premium and discount values, applying both straight-line and the effective interest method to amortize bond premiums and discounts.
- Distinguish between the straight-line and effective interest methods of bond premium or discount amortization.
- Prepare journal entries to record bond retirement.
- Describe the process and mechanics of journal entries made for bond issues between bond interest payment dates.
- Compute the debt-to-equity ratio and discuss its relevance.
- Describe accounting for leases.
- Describe accounting for pensions.

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The article he published, *the interaction between accounting standards and monetary policy: the effect of SFAS 115,* was part of his dissertation and the result of 5+ years of work and revisions. This is quite an accomplishment; hundreds of articles are submitted to the top 3 accounting journals annually and 90% (or more) are rejected and never published in those journals. In addition, dissertation-based articles are rarely published in these journals. With this achievement, Professor Meder establishes himself as a promising researcher and budding expert in his area.

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In February 2009, Sirius XM Holdings, Inc. (NASDAQGS: SIRI) stock hit a low of $0.05 per share. A ten year price per share chart is provided, below. The decline in the stock price was a function of the high level of debt taken to complete a merger and concerns that the firm would be unable to service its debt and be forced into bankruptcy.

As recently as October 2014, the firm had only $0.02 cash per share, debt at nearly $5 billion, and cash of only $100 million. Liquidity remains an issue, but market share leadership is likely the cause of the very significant rebound in the firm's stock price. In October, 2014, the firm's current ratio remained at less than 1.0, at approximately 0.46.

This chapter examines the basics of long-term note and bond financing.

Debt Financing

Notes and bonds are debt instruments issued to finance projects requiring large amounts of money. Debt financing is not restricted to for-profit corporations. The Federal Government, states, cities, and school districts issue debt, including bonds, for long-term financing. Sometimes, debtors become insolvent and default on their notes or bonds. Detroit, for example, was the largest municipal bankruptcy in the history of the U.S., at $18 billion. At issue, in the case of Detroit, was their ability to pay for bonds issued. Detroit entered Chapter 9 bankruptcy in late 2013.

Long-Term Notes (or Mortgages) Payable

Notes (or mortgages) are often issued to provide for the long-term cash needs for a firm. A corporation might sign a note and borrow from a bank or financial institution for these long-term financing needs.

To illustrate, the following table provides what is referred to as a *loan amortization schedule* for a $100,000 mortgage or loan or note. This note requires the payment of 12 percent interest, per year, with annual payments of $17,700. Due to rounding, it is common for a final payment for a note, loan or mortgage to be slightly different from earlier payments amounts.

Assume that the note was signed and $100,000 cash was received on January 1, 2013 (time period 0). The annual payments are due on January 1st of each year (2014 through 2023, or time periods 1 through 10), as follows:

Time Period	Payment	12% Interest	Principal	Balance
0				$100,000.00
1	$17,700.00	$12,000.00	$5,700.00	$94,300.00
2	$17,700.00	$11,316.00	$6,384.00	$87,916.00
3	$17,700.00	$10,549.92	$7,150.08	$80,765.92
4	$17,700.00	$9,691.91	$8,008.09	$72,757.83
5	$17,700.00	$8,730.94	$8,969.06	$63,788.77
6	$17,700.00	$7,654.65	$10,045.35	$53,743.42
7	$17,700.00	$6,449.21	$11,250.79	$42,492.63
8	$17,700.00	$5,099.12	$12,600.88	$29,891.75
9	$17,700.00	$3,587.01	$14,112.99	$15,778.76
10	$17,672.21	$1,893.45	$15,778.76	$0.00
		$76,972.21	$100,000.00	

First, record the note payable and the receipt of cash on January 1, 2013:

Jan. 1, 2013	Cash	$100,000.00	
	Note payable		$100,000.00

The journal entry to accrue interest payable and match interest expense to the period must be made on December 31, 2013 (see above table):

Dec. 31, 2013	Interest expense	$12,000.00	
	Interest payable		$12,000.00

On January 1, 2014, the first payment of $17,700 is made (see above table):

Jan. 1, 2014	Note payable	$5,700.00	
	Interest payable	$12,000.00	
	Cash		$17,700.00

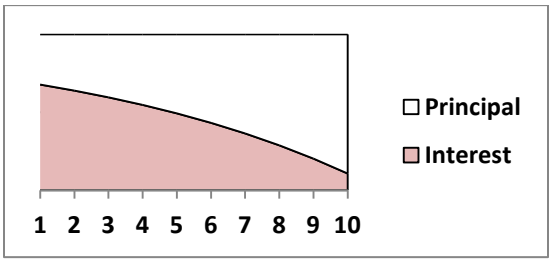
After the first payment of principal and interest is made, the principal balance on the note payable is $94,300 (see above table).

The loan amortization table provides for the interest and principal breakdown and the source of the journal entries for the entire life of the note payable. Journal entries for the accrual of interest on December 31, 2014 and the second cash payment for January 1, 2015, both developed from the above table, follow:

Dec. 31, 2014	Interest expense	$11,316.00	
	Interest payable		$11,316.00

Jan. 1, 2015	Note payable	$6,384.00	
	Interest payable	$11,316.00	
	Cash		$17,700.00

Note that the principal portion of the payment increases with each payment. A graphic, developed from the above table, illustrates the decreasing component of interest and the increasing component of principal for each of the ten, annual payments:



A *note* or *bond* is issued and represents a promise to pay interest during the life of the debt instrument, and, in the case of bonds, repays the original principal amount borrowed at the end of the life of the bond. The original principal amount of the bond is referred to as the *par value*, *face amount* or *face value* of the bond. The end of the life of the bond is referred to as the *maturity date* of the bond.

Most bonds pay interest. These interest payments are usually paid semiannually. You can compute the amount of interest to be paid each semiannual period by multiplying the par value of the bond by the bond's *contract rate* or *stated rate* of interest for that period, as follows:

Par value X Stated rate = Interest

Another Loan Amortization Schedule

Understanding how to generate a loan amortization schedule is a skill useful and helpful in understanding the mechanics illustrated in this chapter. Below is a loan amortization schedule for a 15 year mortgage, at 3.125%, with an original principal balance of $160,000. Only the first 13 months is presented in the table.

In the example and table that follows, at the date of the mortgage and time period "0," the current portion of the mortgage is $8,496 and the non-current portion is $151,504. The current portion represents the principal component of the $1,115 monthly payment for the next 12 months (e.g., $698 + $700 + … + $718 or $160,000 less $151,504).

	Monthly Payment	3.125% Interest	Principal	Balance
0				$160,000
1	$1,115	$417	$698	$159,302
2	$1,115	$415	$700	$158,602
3	$1,115	$413	$702	$157,901
4	$1,115	$411	$703	$157,197
5	$1,115	$409	$705	$156,492
6	$1,115	$408	$707	$155,785
7	$1,115	$406	$709	$155,076
8	$1,115	$404	$711	$154,366
9	$1,115	$402	$713	$153,653
10	$1,115	$400	$714	$152,939
11	$1,115	$398	$716	$152,222
12	$1,115	$396	$718	$151,504
13	$1,115	$395	$720	$150,784

Bond Issues

Loan amortization schedules are produced to represent the amortization of bond discounts and premiums and using what is referred to as the "effective interest" method of bond discount or premium amortization. An alternative method, straight line amortization, is covered later in the chapter. The next section describes both advantages and disadvantages of bond financing.

Advantages of Bonds

1. Bonds can increase return on equity. Referred to as ***financial leverage*** or ***trading on equity***, if a firm can generate a higher return on borrowed funds, when compared to the amounts paid on those borrowed funds, the firm is increasing its return on equity. This is most likely to occur during periods of economic growth and rising revenues and income.
2. Bonds have no impact on common stock-based ownership or control or voting rights. Typically, common shareholders retain and represent the equity ownership, control and voting rights for a for-profit firm. For example, an investor contributing $10,000 of a firm's $100,000 equity financing controls one-tenth or ten percent of all ownership decisions or votes. The same $10,000, invested in the firm's bonds, results in no ownership, control or voting rights. Instead, the bondholder is entitled to receive a contract or state rate of interest during the life of the bond and the return of principal at the end of the life of the bond or maturity date. The owner of $10,000 in bonds, with a contract or state rate of 10 percent, would receive interest payments of $1,000 each year, and the return of his or her $10,000 principal at the end of the life or maturity date of the bond. Alternatively, the Common Stockholder does not receive interest payment, but might receive dividend payments and might also enjoy some appreciation in stock price or equity value, if, after all expenses, including interest expenses, are paid and the firm is profitable.

3. Bond interest is tax deductible. Dividends paid to Common Stockholders are not tax deductible, but interest payments to bondholders are tax deductible. For example, assume that a for-profit corporation, generating a profit, before bond interest and taxes, at $25,000, pays taxes at a 40 percent corporate tax rate or bracket. If the firm issued $100,000 in bonds at a 10 percent contract or stated rate, the $10,000 bond interest would be tax deductible. Therefore, $25,000 less $10,000 in deductible bond interest expense leaves $15,000 subject to the corporate income tax. $15,000 after interest expense, but before the 40 percent rate of corporate income tax, results in $6,000 (60 percent) in corporate income tax and net income of $9,000, as follows:

		with Bonds	without Bonds	Difference
	Income Before Bond Interest or Corporate Income Tax	$25,000	$25,000	$0
Less:	Bond Interest Expense (10% of $100,000)	$10,000	$0	$10,000
Equals:	Income Before Corporate Income Tax	$15,000	$25,000	($10,000)
Less:	Corporate Income Tax (40%)	$6,000	$10,000	($4,000)
Equals:	Net Income After Tax (100% - 40% = 60%)	$9,000	$15,000	($6,000)

Disadvantages of Bonds

1. Bonds can decrease return on equity. Referred to as ***financial leverage*** or ***trading on equity***, if a firm generates a lower return on borrowed funds, when compared to the amounts paid on those borrowed funds, the firm is decreasing its return on equity. This is most likely to occur during periods of economic contraction and declining revenues and income.
2. Bonds require payments for periodic interest and the return of principal or par value at their maturity date. The interest payments, in particular, result in required cash outflows. Equity financing, or issuing Common Stock, does not. While the board of directors might decide to issue cash dividends to Common Stockholders, these cash outflows are discretionary. Bond interest payments are not discretionary, as they represent contractual obligations. Failure to make a bond payment (for the firm) is not unlike failing to make a home mortgage interest payment (for the individual). Failure to make a payment results in default and can result in Chapter 11 or 7 bankruptcy for a firm, just as it might result in a home foreclosure for an individual.

Bond Trading

Bonds are issued and trade at par, above par (premium) or below par (discount). Bond values are expressed as a percent of their par or face value. For example, bonds issued at 103 are selling at 103 percent (premium) of their par or face value and bonds issued or trading at 97 are selling at 97 percent (discount) of their par or face value.

Bonds Payable – Issued at Par (Contract Rate 10% = 10% Market Rate)
When bonds are issued at par, there is no premium or discount to amortize. The market requires a rate of interest for the bonds. This market-based rate of return or yield is precisely the same as the *stated rate* or *face rate* of interest to be paid on the bonds.

Assume that Colaiezzi Corporation issued $1,000,000 of 10 percent, 30 year bonds on January 1, 2014, at par, in exchange for cash, as follows:

Jan. 1	Cash	$1,000,000	
	Bonds Payable		$1,000,000
	To record the sale of $1 million in bonds.		

Further assume that interest is paid, semi-annually, on July 1 and January 1, each year. The first interest payment of $50,000 ($1,000,000 multiplied by 10 percent and divided by 2) is paid on July 1, 2014, as follows:

Jul. 1	Interest Expense	$50,000	
	Cash		$50,000
	To record interest expense paid for the first six months of interest on bonds.		

On December 31st, Colaiezzi Corporation must make the necessary adjusting journal entries, prior to preparing their financial statements for year end. The accrual made on December 31st follows:

Dec. 31	Interest Expense	$50,000	
	Interest Payable		$50,000
	To record interest expense for the second six months of interest on bonds.		

On January 1st, 2015, the second interest payment is made, eliminating the balance in the interest payable account, as follows:

Jan. 1	Interest Payable	$50,000	
	Cash		$50,000
	To record interest expense paid for the second six months of interest on bonds.		

The impact on the interest payable account is shown, below, in T-account form:

Interest Payable	
	Dec. 31 $50,000
Jan. 1 $50,000	
	Balance $-0-

The following table illustrates this first case. There is no premium or discount associated with the bonds issued at par value, as follows:

		10%					10%		
	Payment	Interest	Principal	Balance		Payment	Interest	Principal	Balance
				$1,000,000					$1,000,000
1	$50,000	$50,000	$0	$1,000,000	31	$50,000	$50,000	$0	$1,000,000
2	$50,000	$50,000	$0	$1,000,000	32	$50,000	$50,000	$0	$1,000,000
3	$50,000	$50,000	$0	$1,000,000	33	$50,000	$50,000	$0	$1,000,000
4	$50,000	$50,000	$0	$1,000,000	34	$50,000	$50,000	$0	$1,000,000
5	$50,000	$50,000	$0	$1,000,000	35	$50,000	$50,000	$0	$1,000,000
6	$50,000	$50,000	$0	$1,000,000	36	$50,000	$50,000	$0	$1,000,000
7	$50,000	$50,000	$0	$1,000,000	37	$50,000	$50,000	$0	$1,000,000
8	$50,000	$50,000	$0	$1,000,000	38	$50,000	$50,000	$0	$1,000,000
9	$50,000	$50,000	$0	$1,000,000	39	$50,000	$50,000	$0	$1,000,000
10	$50,000	$50,000	$0	$1,000,000	40	$50,000	$50,000	$0	$1,000,000
11	$50,000	$50,000	$0	$1,000,000	41	$50,000	$50,000	$0	$1,000,000
12	$50,000	$50,000	$0	$1,000,000	42	$50,000	$50,000	$0	$1,000,000
13	$50,000	$50,000	$0	$1,000,000	43	$50,000	$50,000	$0	$1,000,000
14	$50,000	$50,000	$0	$1,000,000	44	$50,000	$50,000	$0	$1,000,000
15	$50,000	$50,000	$0	$1,000,000	45	$50,000	$50,000	$0	$1,000,000
16	$50,000	$50,000	$0	$1,000,000	46	$50,000	$50,000	$0	$1,000,000
17	$50,000	$50,000	$0	$1,000,000	47	$50,000	$50,000	$0	$1,000,000
18	$50,000	$50,000	$0	$1,000,000	48	$50,000	$50,000	$0	$1,000,000
19	$50,000	$50,000	$0	$1,000,000	49	$50,000	$50,000	$0	$1,000,000
20	$50,000	$50,000	$0	$1,000,000	50	$50,000	$50,000	$0	$1,000,000
21	$50,000	$50,000	$0	$1,000,000	51	$50,000	$50,000	$0	$1,000,000
22	$50,000	$50,000	$0	$1,000,000	52	$50,000	$50,000	$0	$1,000,000
23	$50,000	$50,000	$0	$1,000,000	53	$50,000	$50,000	$0	$1,000,000
24	$50,000	$50,000	$0	$1,000,000	54	$50,000	$50,000	$0	$1,000,000
25	$50,000	$50,000	$0	$1,000,000	55	$50,000	$50,000	$0	$1,000,000
26	$50,000	$50,000	$0	$1,000,000	56	$50,000	$50,000	$0	$1,000,000
27	$50,000	$50,000	$0	$1,000,000	57	$50,000	$50,000	$0	$1,000,000
28	$50,000	$50,000	$0	$1,000,000	58	$50,000	$50,000	$0	$1,000,000
29	$50,000	$50,000	$0	$1,000,000	59	$50,000	$50,000	$0	$1,000,000
30	$50,000	$50,000	$0	$1,000,000	60	$50,000	$50,000	$0	$1,000,000

Bonds Payable – Issued at a Premium (Contract Rate 10% > 8% Market Rate)
When bonds are issued at par, there is no premium or discount to amortize. The market required a rate of interest for the bonds. This market-based rate of return or yield was precisely the same as the stated or face rate of interest to be paid on the bonds. This section examines an alternative. It assumes that the stated or face rate of interest to be paid on the bonds is above the yield required by the market. The table that follows

produces a loan amortization schedule where the bonds are issued with a 10% face rate or stated rate, but at a time when the market requires a market-based rate of return of only 8 percent, as follows:[2]

		8%					8%		
	Payment	Interest	Premium	Balance		Payment	Interest	Premium	Balance
				$1,131,175					$864,603
1	$50,000	$45,247	$4,753	$1,126,422	31	$50,000	$34,584	$15,416	$849,187
2	$50,000	$45,057	$4,943	$1,121,479	32	$50,000	$33,967	$16,033	$833,155
3	$50,000	$44,859	$5,141	$1,116,338	33	$50,000	$33,326	$16,674	$816,481
4	$50,000	$44,654	$5,346	$1,110,992	34	$50,000	$32,659	$17,341	$799,140
5	$50,000	$44,440	$5,560	$1,105,431	35	$50,000	$31,966	$18,034	$781,106
6	$50,000	$44,217	$5,783	$1,099,648	36	$50,000	$31,244	$18,756	$762,350
7	$50,000	$43,986	$6,014	$1,093,634	37	$50,000	$30,494	$19,506	$742,844
8	$50,000	$43,745	$6,255	$1,087,380	38	$50,000	$29,714	$20,286	$722,558
9	$50,000	$43,495	$6,505	$1,080,875	39	$50,000	$28,902	$21,098	$701,460
10	$50,000	$43,235	$6,765	$1,074,110	40	$50,000	$28,058	$21,942	$679,519
11	$50,000	$42,964	$7,036	$1,067,074	41	$50,000	$27,181	$22,819	$656,699
12	$50,000	$42,683	$7,317	$1,059,757	42	$50,000	$26,268	$23,732	$632,967
13	$50,000	$42,390	$7,610	$1,052,148	43	$50,000	$25,319	$24,681	$608,286
14	$50,000	$42,086	$7,914	$1,044,234	44	$50,000	$24,331	$25,669	$582,618
15	$50,000	$41,769	$8,231	$1,036,003	45	$50,000	$23,305	$26,695	$555,922
16	$50,000	$41,440	$8,560	$1,027,443	46	$50,000	$22,237	$27,763	$528,159
17	$50,000	$41,098	$8,902	$1,018,541	47	$50,000	$21,126	$28,874	$499,286
18	$50,000	$40,742	$9,258	$1,009,282	48	$50,000	$19,971	$30,029	$469,257
19	$50,000	$40,371	$9,629	$999,654	49	$50,000	$18,770	$31,230	$438,027
20	$50,000	$39,986	$10,014	$989,640	50	$50,000	$17,521	$32,479	$405,548
21	$50,000	$39,586	$10,414	$979,225	51	$50,000	$16,222	$33,778	$371,770
22	$50,000	$39,169	$10,831	$968,394	52	$50,000	$14,871	$35,129	$336,641
23	$50,000	$38,736	$11,264	$957,130	53	$50,000	$13,466	$36,534	$300,107
24	$50,000	$38,285	$11,715	$945,415	54	$50,000	$12,004	$37,996	$262,111
25	$50,000	$37,817	$12,183	$933,232	55	$50,000	$10,484	$39,516	$222,595
26	$50,000	$37,329	$12,671	$920,561	56	$50,000	$8,904	$41,096	$181,499
27	$50,000	$36,822	$13,178	$907,384	57	$50,000	$7,260	$42,740	$138,759
28	$50,000	$36,295	$13,705	$893,679	58	$50,000	$5,550	$44,450	$94,310
29	$50,000	$35,747	$14,253	$879,426	59	$50,000	$3,772	$46,228	$48,082
30	$50,000	$35,177	$14,823	$864,603	60	$50,000	$1,923	$48,077	$5

In this second case, assume that Colaiezzi Corporation issued $1,000,000 of 10 percent, 30 year bonds on January 1, 2014, to yield 8 percent, in exchange for cash, as follows:

[2] Note that there is a $5 rounding error at the end of the table and life of the bond.

Jan. 1	Cash	$1,131,175	
	Bond premium		$131,175
	Bonds payable		$1,000,000
	To record the sale of $1 million in bonds.		

Again, assume that payments are made, semi-annually, on July 1 and January 1, each year. The first payment of $50,000 is made on July 1, 2014, as follows:

Jul. 1	Interest expense	$45,247	
	Bond premium	$4,753	
	Cash		$50,000
	To record first bond payment for the first six months of interest on bonds.		

On December 31st, Colaiezzi Corporation must make the necessary adjusting journal entries, prior to preparing their financial statements for year end. The accrual made on December 31st follows:

Dec. 31	Interest expense	$45,057	
	Interest payable		$45,057
	To record interest expense for the second six months of interest on bonds.		

On January 1st, 2015, the second interest payment is made, eliminating the balance in the interest payable account, as follows:

Jan. 1	Interest payable	$45,057	
	Bond premium	$4,943	
	Cash		$50,000
	To record interest expense paid for the second six months of interest on bonds.		

Bonds Payable – Issued at a Discount (Contract Rate 10% < 12% Market Rate)
When bonds are issued at par, there is no premium or discount to amortize. The market required a rate of interest for the bonds. This market-based rate of return or yield was precisely the same as the stated or face rate of interest to be paid on the bonds. This section examines an alternative. It assumes that the stated or face rate of interest to be paid on the bonds is below the yield required by the market. The table that follows produces a loan amortization schedule where the bonds are issued with a 10% face rate or stated rate, but where the market requires a market-based rate of return of 12 percent, as follows:[3]

[3] Note that there is a $9 rounding error at the end of the table and life of the bond.

		12%					12%		
	Payment	Interest	Discount	Balance		Payment	Interest	Discount	Balance
				$838,386					$862,353
1	$50,000	$50,303	$303	$838,689	31	$50,000	$51,741	$1,741	$864,094
2	$50,000	$50,321	$321	$839,011	32	$50,000	$51,846	$1,846	$865,940
3	$50,000	$50,341	$341	$839,351	33	$50,000	$51,956	$1,956	$867,897
4	$50,000	$50,361	$361	$839,712	34	$50,000	$52,074	$2,074	$869,970
5	$50,000	$50,383	$383	$840,095	35	$50,000	$52,198	$2,198	$872,169
6	$50,000	$50,406	$406	$840,501	36	$50,000	$52,330	$2,330	$874,499
7	$50,000	$50,430	$430	$840,931	37	$50,000	$52,470	$2,470	$876,969
8	$50,000	$50,456	$456	$841,387	38	$50,000	$52,618	$2,618	$879,587
9	$50,000	$50,483	$483	$841,870	39	$50,000	$52,775	$2,775	$882,362
10	$50,000	$50,512	$512	$842,382	40	$50,000	$52,942	$2,942	$885,304
11	$50,000	$50,543	$543	$842,925	41	$50,000	$53,118	$3,118	$888,422
12	$50,000	$50,575	$575	$843,500	42	$50,000	$53,305	$3,305	$891,727
13	$50,000	$50,610	$610	$844,110	43	$50,000	$53,504	$3,504	$895,231
14	$50,000	$50,647	$647	$844,757	44	$50,000	$53,714	$3,714	$898,945
15	$50,000	$50,685	$685	$845,442	45	$50,000	$53,937	$3,937	$902,881
16	$50,000	$50,727	$727	$846,169	46	$50,000	$54,173	$4,173	$907,054
17	$50,000	$50,770	$770	$846,939	47	$50,000	$54,423	$4,423	$911,477
18	$50,000	$50,816	$816	$847,755	48	$50,000	$54,689	$4,689	$916,166
19	$50,000	$50,865	$865	$848,621	49	$50,000	$54,970	$4,970	$921,136
20	$50,000	$50,917	$917	$849,538	50	$50,000	$55,268	$5,268	$926,404
21	$50,000	$50,972	$972	$850,510	51	$50,000	$55,584	$5,584	$931,988
22	$50,000	$51,031	$1,031	$851,541	52	$50,000	$55,919	$5,919	$937,908
23	$50,000	$51,092	$1,092	$852,633	53	$50,000	$56,274	$6,274	$944,182
24	$50,000	$51,158	$1,158	$853,791	54	$50,000	$56,651	$6,651	$950,833
25	$50,000	$51,227	$1,227	$855,019	55	$50,000	$57,050	$7,050	$957,883
26	$50,000	$51,301	$1,301	$856,320	56	$50,000	$57,473	$7,473	$965,356
27	$50,000	$51,379	$1,379	$857,699	57	$50,000	$57,921	$7,921	$973,278
28	$50,000	$51,462	$1,462	$859,161	58	$50,000	$58,397	$8,397	$981,674
29	$50,000	$51,550	$1,550	$860,711	59	$50,000	$58,900	$8,900	$990,575
30	$50,000	$51,643	$1,643	$862,353	60	$50,000	$59,434	$9,434	$1,000,009

In this third case, assume that Colaiezzi Corporation issued $1,000,000 of 10 percent, 30 year bonds on January 1, 2014, to yield 12 percent, in exchange for cash, as follows:

Jan. 1	**Cash**	**$838,386**	
	Bond discount	**$161,614**	
	Bonds payable		**$1,000,000**
	To record the sale of $1 million in bonds.		

Again, assume that payments are made, semi-annually, on July 1 and January 1, each year. The first payment of $50,000 is made on July 1, 2014, as follows:

Jul. 1	Interest expense	$50,303	
	Bond discount		$303
	Cash		$50,000
	To record first bond payment for the first six months of interest on bonds.		

On December 31st, Colaiezzi Corporation must make the necessary adjusting journal entries, prior to preparing their financial statements for year end. The accrual made on December 31st follows:

Dec. 31	Interest expense	$50,321	
	Interest payable		$50,321
	To record interest expense for the second six months of interest on bonds.		

On January 1st, 2015, the second interest payment is made, eliminating the balance in the interest payable account, as follows:

Jan. 1	Interest payable	$50,321	
	Bond discount		$321
	Cash		$50,000
	To record interest expense paid for the second six months of interest on bonds.		

Long-Term Liabilities and Bonds Payable

Long-Term debt includes bonds or bonds payable. Other examples of long-term debt include notes payable, mortgages payable, pension liabilities, and leases.

Long-Term debt usually involves formality and fees or commissions for their sale, and may include a review or amendments to articles of incorporation or corporate bylaws, as well as approval by the firm's board of directors. Long-Term debts may have a variety of covenants and/or restrictions to protect both lenders and borrowers, as stated in the bond indenture or debt agreement. Explicitly stated terms are likely to include amounts authorized for issuance, interest rate, due date(s), call provisions, property pledged as security, any applicable sinking fund requirements, working capital, dividend and additional debt assumption restrictions during the life of the bond.[4]

[4] Significant covenants are disclosed in the body of the financial statements.

A bond originates from a bond indenture.[5] Bonds provide a repayment of principle at the end of the life of the bond and periodic payments of interest. They may have a variety of face values or maturity amounts (e.g., $1,000 or $10,000). Frequently, corporate bonds make interest payments semiannually. Bonds may be secured[6], unsecured[7], term[8], serial[9], callable[10], convertible[11], commodity-backed[12], deep discount[13], registered[14], bearer (coupon)[15], income[16] or revenue[17].

Valuation of Bonds

Bonds sell at prices based on supply and demand, where they are valued at the present value of their future cash flows for (1) interest and (2) principal. The stated, coupon or nominal rate of interest is the interest rate printed or specified on the bond certificate. The principal amount of the bond is also referred to as the *par value*, *face value* or *maturity value*.

It takes quite a bit of preparation to issue bonds. Underwriters are arranged, Securities and Exchange Commission approval may be necessary, audits and/or issuance of a prospectus may be required, and the physical certificates must be printed. Once printed, the market rate of interest may change, and the stated rate of interest on the printed bond certificate may be higher or lower than the rate required by potential buyers of the bonds. If no changes in required interest rates occur, the bonds are issued at par. However, if the

[5] If you would like to see examples, purchase and review a copy of the *Wall Street Journal*, where underwriters frequently advertise large bond indentures in ¼- or ⅛-page advertisements.
[6] Secured bonds are backed by a specific asset or pledge (e.g., a new automobile manufacturing plant).
[7] Unsecured bonds are not secured by any specific asset (e.g., junk bonds).
[8] Term bond issues mature on a single date.
[9] Serially maturing bonds are often used by municipalities or governmental entities.
[10] Callable bonds allow the issuer to "call" or buy back the bonds prior to their maturity date.
[11] Convertible bonds contain a feature that allows the purchaser to convert the financial instrument into an alternative financial instrument (e.g., convertible into 5 shares of the firm's common stock at 5 shares per $1,000, effectively establishing a "strike price" of $200 per share of stock).
[12] These asset-linked bonds follow commodities such as gold, silver, and so on.
[13] These are sold at a discount and are also referred to as zero-interest bonds
[14] Registered bonds are issued in the name of the buyer.
[15] Bearer bonds are not issued in the name of the buyer or owner and may be transferred from owner to owner by mere delivery. The film, *Die Hard*, is about a robbery involving the theft of bearer bonds.
[16] Income bonds pay interest only when the issuing firm is profitable.
[17] Revenue bonds are paid from proceeds arising from a specific source (e.g., toll-roads and air-ports).

desired rate of interest rises, the bonds must be issued at a discount to yield the desired rate of return. If interest rates fall and the desired rate of interest declines, the bonds may be issued at a premium to their stated or face or par value. The market interest rate and the price of bonds are inversely related, as follows:

↑ market interest rates = ↓ market price of bonds
↓ market interest rates = ↑ market price of bonds

To illustrate how the above interactions and changing market conditions impact bonds, a simple fact pattern will be used. Assume that $100,000 in bonds are issued on January 1, 20X0, with a face or stated interest rate of 10%. Semiannual payments of interest are made on June 30 and December 31 of each year for these 5-year bonds, as follows:

	Bonds Payable	$100,000
multiplied by:	Annual Interest Rate	X 10%
equals:	Annual Cash Payments for Interest	$10,000
divided by:	2 Payments per year (semiannual)	÷ 2
equals:	June 30 & December 31 Cash Payments for Interest	$5,000

Valuation of Bonds – Issued at Par

Assume that there have been no changes between market-based interest rates and the stated interest rate of 10%. In this case, the bonds are said to have been issued at par. The valuation or present value (PV) of the (1) interest payments (***r*** per period or ***n***) and (2) the principal balance to be repaid and maturity follows:

		PV Factor	PV	n	r
PV of Principal at Bond Maturity	$100,000	0.61391	$61,391	10	5%
PV of Semiannual Interest Payments	$5,000	7.72173	$38,609	10	5%
PV of Bonds			$100,000		

The above table can be verified by computing the PV of cash outflows for interest (r) and principal payments, both separately and combined, as follows:

	A	B	C A+B	D	E CXD
			Cash		PV Cash
	Interest	Principal	Outflows	PV Factor	Outflows
6/30/20X0	$5,000	$0	$5,000	0.95238	$4,762
12/31/20X0	$5,000	$0	$5,000	0.90703	$4,535
6/30/20X1	$5,000	$0	$5,000	0.86384	$4,319
12/31/20X1	$5,000	$0	$5,000	0.82270	$4,114
6/30/20X2	$5,000	$0	$5,000	0.78353	$3,918
12/31/20X2	$5,000	$0	$5,000	0.74622	$3,731
6/30/20X3	$5,000	$0	$5,000	0.71068	$3,553
12/31/20X3	$5,000	$0	$5,000	0.67684	$3,384
6/30/20X4	$5,000	$0	$5,000	0.64461	$3,223
12/31/20X4	$5,000	$100,000	$105,000	0.61391	$64,461
	$50,000	$100,000	$150,000		$100,000

The journal entry required when the proceeds from the sale are received follows:

1/1/20X0	Cash	$100,000	
	Bonds Payable		$100,000

On June 30, 20X0, the first interest payment will be due on the bonds. The JE to record this cash payment of interest expense follows:

6/30/20X0	Bond Interest Expense	$5,000	
	Cash		$5,000

The above journal entry will repeated, as cash payments for interest are made every June 30 and December 31 for the life of the bonds.

If financial statements were prepared on March 31, 20X0, the following JE would be made to record the accrual for 3 months of bond interest payable, as follows:

3/31/20X0	Bond Interest Expense	$2,500	
	Bond Interest Payable		$2,500

When the bonds are retired on December 31, 20X4, repayment of their principal balance or face value will be recorded with the following journal entry:

12/31/20X4	Bonds Payable	$100,000	
	Cash		$100,000

Valuation of Bonds – Issued at a Premium

Assume that there have been decreases in market-based interest rates to 8%, while and the stated interest rate is 10%. In this case, the bonds will be issued at a premium and to yield 8%. The valuation or present value (PV) of the (1) interest payments (***r*** per period or ***n***) and (2) the principal balance to be repaid and maturity follows:

		PV Factor	PV	*n*	*r*
PV of Principal at Bond Maturity	$100,000	0.67556	$67,556	10	4%
PV of Semiannual Interest Payments	$5,000	8.11090	$40,555	10	4%
Equals: Cash Inflows from Bond Sales			$108,111		
Less: Face Value of Bonds			$100,000		
Equals: Premium to be Amortized			$8,111		

The journal entry required when the proceeds from the sale are received follows:

1/1/20X0	Cash	$108,111	
	Premium on Bonds Payable		$8,111
	Bonds Payable		$100,000

Valuation of Bonds – Issued at a Premium: Straight-Line Amortization

On June 30, 20X0, the first interest payment will be due on the bonds. The journal entry to record this cash payment of interest expense follows:

6/30/20X0	Bond Interest Expense	$4,188.90	
	Premium on Bonds Payable	$811.10	
	Cash		$5,000.00

The above journal entry will repeated, as cash payments for interest are made every June 30 and December 31 for the 5-year life of the bonds.

Valuation of Bonds – Issued at a Premium: Effective Interest Amortization
The effective interest method of amortization more closely approximates economic reality. The following table provides an alternative to the straight-line method:

	(1)	(2)	(1) - (2)	
	CR	DR	DR	
		Interest	Premium	Book
Date	Cash	Expense	Amortized	Value
1/1/20X0				$108,111
6/30/20X0	$5,000	$4,324	$676	$107,435
12/31/20X0	$5,000	$4,297	$703	$106,733
6/30/20X1	$5,000	$4,269	$731	$106,002
12/31/20X1	$5,000	$4,240	$760	$105,242
6/30/20X2	$5,000	$4,210	$790	$104,452
12/31/20X2	$5,000	$4,178	$822	$103,630
6/30/20X3	$5,000	$4,145	$855	$102,775
12/31/20X3	$5,000	$4,111	$889	$101,886
6/30/20X4	$5,000	$4,075	$925	$100,962
12/31/20X4	$5,000	$4,038	$962	$100,000
	$50,000	$41,889	$8,111	

On June 30, 20X0, the first interest payment will be due on the bonds. The journal entry to record this cash payment of interest expense, developed from the above table, follows:

6/30/20X0	Bond Interest Expense	$4,324	
	Premium on Bonds Payable	$676	
	Cash		$5,000

On December 31, 20X0, the second interest payment will be due on the bonds. The journal entry to record this cash payment of interest expense, developed from the above table, follows:

12/31/20X0	Bond Interest Expense	$4,297	
	Premium on Bonds Payable	$703	
	Cash		$5,000

Valuation of Bonds – Issued at a Discount
Assume that there have been increases in market-based interest rates to 12%, while and the stated interest rate is 10%. In this case, the bonds will be issued at a discount and to yield 12%. The valuation or present value (PV) of the (1) interest payments (***r*** per period or ***n***) and (2) the principal balance to be repaid and maturity follows:

		PV Factor	PV	*n*	*r*
PV of Principal at Bond Maturity	$100,000	0.55839	$55,839	10	6%
PV of Semiannual Interest Payments	$5,000	7.36009	$36,800	10	6%
Equals: Cash Inflows from Bond Sales			$92,639		
Less: Face Value of Bonds			$100,000		
Equals: Discount to be Amortized			($7,361)		

The journal entry required when the proceeds from the sale are received follows:

1/1/20X0	Cash	$92,639	
	Discount on Bonds Payable	$7,361	
	Bonds Payable		$100,000

Valuation of Bonds – Issued at a Discount: Straight-Line Amortization

On June 30, 20X0, the first interest payment will be due on the bonds. The journal entry to record this cash payment of interest expense follows:

6/30/20X0	Bond Interest Expense	$5,736.10	
	Discount on Bonds Payable		$736.10
	Cash		$5,000.00

The above journal entry will repeated, as cash payments for interest are made every June 30 and December 31 for the 5-year life of the bonds.

Valuation of Bonds – Issued at a Discount: Effective Interest Amortization
The effective interest method of amortization more closely approximates economic reality. The following table provides an alternative to the straight-line method:

	(1) CR	(2) DR	(1) - (2) CR	
Date	Cash	Interest Expense	Discount Amortized	Book Value
1/1/20X0				$92,639
6/30/20X0	$5,000	$5,558	$558	$93,198
12/31/20X0	$5,000	$5,592	$592	$93,790
6/30/20X1	$5,000	$5,627	$627	$94,417
12/31/20X1	$5,000	$5,665	$665	$95,082
6/30/20X2	$5,000	$5,705	$705	$95,787
12/31/20X2	$5,000	$5,747	$747	$96,534
6/30/20X3	$5,000	$5,792	$792	$97,326
12/31/20X3	$5,000	$5,840	$840	$98,166
6/30/20X4	$5,000	$5,890	$890	$99,056
12/31/20X4	$5,000	$5,943	$943	$100,000
	$50,000	$57,360	$7,361	

On June 30, 20X0, the first interest payment will be due on the bonds. The journal entry to record this cash payment of interest expense, developed from the above table, follows:

6/30/20X0	Bond Interest Expense	$5,558	
	Discount on Bonds Payable		$558
	Cash		$5,000

On December 31, 20X0, the second interest payment will be due on the bonds. The journal entry to record this cash payment of interest expense, developed from the above table, follows:

12/31/20X0	Bond Interest Expense	$5,592	
	Discount on Bonds Payable		$592
	Cash		$5,000

Bond Retirement at Maturity

The carrying value of bonds at maturity always equal par value. Recall, in the case of bonds issued at both premium and discount, the carrying or book value of bonds always equal par value at the end of their term, as follows:

Date	Cash	Interest Expense	Premium Amortized	Book Value
1/1/20X0				$108,111
6/30/20X0	$5,000	$4,324	$676	$107,435
12/31/20X0	$5,000	$4,297	$703	$106,733
6/30/20X1	$5,000	$4,269	$731	$106,002
12/31/20X1	$5,000	$4,240	$760	$105,242
6/30/20X2	$5,000	$4,210	$790	$104,452
12/31/20X2	$5,000	$4,178	$822	$103,630
6/30/20X3	$5,000	$4,145	$855	$102,775
12/31/20X3	$5,000	$4,111	$889	$101,886
6/30/20X4	$5,000	$4,075	$925	$100,962
12/31/20X4	$5,000	$4,038	$962	$100,000
	$50,000	$41,889	$8,111	

Date	Cash	Interest Expense	Discount Amortized	Book Value
1/1/20X0				$92,639
6/30/20X0	$5,000	$5,558	$558	$93,198
12/31/20X0	$5,000	$5,592	$592	$93,790
6/30/20X1	$5,000	$5,627	$627	$94,417
12/31/20X1	$5,000	$5,665	$665	$95,082
6/30/20X2	$5,000	$5,705	$705	$95,787
12/31/20X2	$5,000	$5,747	$747	$96,534
6/30/20X3	$5,000	$5,792	$792	$97,326
12/31/20X3	$5,000	$5,840	$840	$98,166
6/30/20X4	$5,000	$5,890	$890	$99,056
12/31/20X4	$5,000	$5,943	$943	$100,000
	$50,000	$57,360	$7,361	

Therefore, in all cases, bonds retired at maturity, assuming interest is already paid and the related journal entry already completed and entered, is recorded as follows:

12/31/20X4	Bonds payable	$100,000	
	Cash		$100,000

Bond Retirement before Maturity

Bonds are sometimes retired before maturity. This is most likely to occur when there has been a significant decline in interest rates below the stated rate paid on the bonds. For example, if the bonds are paying 12 percent and market rates for comparable debt instruments decline to 6 percent, early retirement can save the issuer quite a bit in interest expense.

If the bonds are callable, the issuer can merely exercise their call option. This might involve the payment of a *call premium*. Alternatively, they can simply be purchased in the open or secondary market at market rates. Regardless of the method of early retirement, a price other than the bond book or carrying value is likely to be paid. A gain or loss (usually a gain) will be recorded for the difference between book or carrying and market value.

Assume that the bonds, originally issued at a premium, are retired early, through open market purchases, due to a significant decline in interest rates. The open market purchase occurs on December 31, 201X1, immediately after the relevant interest payment and when the market rate for the bonds is $98,000. The relevant portion of the bond amortization table follows:

Date	Cash	Interest Expense	Premium Amortized	Book Value
1/1/20X0				$108,111
6/30/20X0	$5,000	$4,324	$676	$107,435
12/31/20X0	$5,000	$4,297	$703	$106,733
6/30/20X1	$5,000	$4,269	$731	$106,002
12/31/20X1	$5,000	$4,240	$760	**$105,242**

The journal entry to retire the bonds early, on December 31, 20X1, follows:

12/31/20X1	Bonds payable	$100,000	
	Premium on bonds payable	$5,242	
	Gain on bonds		$7,242
	Cash		$98,000

Book or Carrying Value of Bonds	$105,242
Cost to Repurchase Bonds	$98,000
Gain on Repurchase of Bonds	$7,242

Alternatively, assume that the bonds, originally issued at a discount, are retired early, through open market purchases, due to a significant decline in interest rates. Again, the open market purchase occurs on December 31, 201X1, immediately after the relevant interest payment and when the market rate for the bonds is $98,000. The relevant portion of the bond amortization table follows:

Date	Cash	Interest Expense	Discount Amortized	Book Value
1/1/20X0				$92,639
6/30/20X0	$5,000	$5,558	$558	$93,198
12/31/20X0	$5,000	$5,592	$592	$93,790
6/30/20X1	$5,000	$5,627	$627	$94,417
12/31/20X1	$5,000	$5,665	$665	**$95,082**

The journal entry to retire the bonds early, on December 31, 20X1, follows:

12/31/20X1	Bonds payable	$100,000	
	Loss on bonds payable	$2,918	
	Discount on bonds payable		$4,918
	Cash		$98,000

Book or Carrying Value of Bonds	$95,082
Cost to Repurchase Bonds	$98,000
Loss on Repurchase of Bonds	($2,918)

Bond Retirement by Conversion to Stock

Some bonds contain a conversion feature allowing the holder to exchange the bonds for stock. When conversion occurs, there is no gain or loss. The carrying value is transferred from the relevant liability to the relevant equity accounts, as follows:

Bonds payable	$XXX	
Common stock		$XXX
Paid in capital in excess of par – Common stock		$XXX

Bond Issuance Costs

Bond issuance involves printing, legal and accounting fees, commissions, advertising and promotion, and other costs. These costs reduce the net proceeds from the sale of these bonds and, effectively, increase the interest rate. Therefore, these costs should be accumulated, capitalized (and treated as an asset) and amortized over the life of these securities. The effective interest method is theoretically preferable, but the below illustrates how these costs might be amortized under the SL method, where the costs of the bond issue on January 1, 20X0 are $2,000, as follows:

1/1/20X0	Unamortized Bond Issuance Expense	$2,000	
	Cash		$2,000

The journal entry for the first interest payment date, 6 months after these 5-year bonds are issued, follows:

6/30/20X0	Bond Issuance Expense	$200	
	Unamortized Bond Issuance Expense		$200

Appendix A

Present Value

In broad terms, the present value of an investment requires the capitalization of an income or net cash inflow stream, plus the present value of the residual. In the case of the latter, the PRESENT VALUE OF $1 table is contained in Appendix F. In the case of the former, the PRESENT VALUE OF AN ANNUITY OF $1 IN AREARS table is contained in Appendix G.

Present value is used in accounting and by accountants, but most of an undergraduate's training in present value and valuation occurs in an undergraduate finance or corporate finance course, where the present value of a security is often the focus for application of present value techniques. They are covered in terms of "net present value" and/or "internal rate of return," where the former is more broadly applied. These and a variety of "discounted cash flow" (DCF) techniques must be mastered by today's students completing undergraduate degrees in any business discipline.

Appendix B

Effective Interest

The below tables were first introduced in the body of the chapter.

First, the valuation of bonds – issued at a premium is provided, using the effective interest method:

Date	Cash	Interest Expense	Premium Amortized	Book Value
1/1/20X0				$108,111
6/30/20X0	$5,000	$4,324	$676	$107,435

6/30/20X0	Bond Interest Expense	$4,324.00	
	Premium on Bonds Payable	$676.00	
	Cash		$5,000.00

If the straight-line method were used, the amortization of the premium on bonds payable would be constant or the same amount for each period, as follows:

6/30/20X0	Bond Interest Expense	$4,188.90	
	Premium on Bonds Payable	$811.10	
	Cash		$5,000.00
	To record straight-line amortization of premium:		
	$108,111 - $100,000 = $8,111 ÷ 10 = $811.10.		
	$5,000 - $811.10 = $4,188.90.		

Both effective interest method and straight-line method amortize or allocate the same $8,111 bond premium over the life of the bonds, but the effective interest method most closely approximates economic reality, matching the more precise measure to each period.

Second, the valuation of bonds – issued at a discount is provided, also using the effective interest method:

Date	Cash	Interest Expense	Discount Amortized	Book Value
1/1/20X0				$92,639
6/30/20X0	$5,000	$5,558	$558	$93,198

6/30/20X0	Bond Interest Expense	$5,558.00	
	Discount on Bonds Payable		$558.00
	Cash		$5,000.00

If the straight-line method were used, the amortization of the discount on bonds payable would be constant or the same amount for each period, as follows:

6/30/20X0	Bond Interest Expense	$5,736.10	
	Discount on Bonds Payable		$736.10
	Cash		$5,000.00
	To record straight-line amortization of discount:		
	$100,000 - $92,639 = $7,361 ÷ 10 = $736.10.		
	$5,000 + $736.10 = $5,736.10.		

Both effective interest method and straight-line method amortize or allocate the same $7,361 bond discount over the life of the bonds, but the effective interest method most closely approximates economic reality, matching the more precise measure to the income statement for each period.

Tabular comparisons between the effective interest and straight-line methods
The following tables provide a comparison of the effective interest and straight-line methods for the entire life of the bond examples used in the body of the chapter, for both premiums and discounts, respectively:

		Effective				Straight-line		
		Interest	Premium	Book		Interest	Premium	Book
Date	Cash	Expense	Amortized	Value	Cash	Expense	Amortized	Value
1/1/20X0				$108,111				$108,111
6/30/20X0	$5,000	$4,324	$676	$107,435	$5,000	$4,189	$811	$107,300
12/31/20X0	$5,000	$4,297	$703	$106,733	$5,000	$4,189	$811	$106,489
6/30/20X1	$5,000	$4,269	$731	$106,002	$5,000	$4,189	$811	$105,678
12/31/20X1	$5,000	$4,240	$760	$105,242	$5,000	$4,189	$811	$104,867
6/30/20X2	$5,000	$4,210	$790	$104,452	$5,000	$4,189	$811	$104,056
12/31/20X2	$5,000	$4,178	$822	$103,630	$5,000	$4,189	$811	$103,244
6/30/20X3	$5,000	$4,145	$855	$102,775	$5,000	$4,189	$811	$102,433
12/31/20X3	$5,000	$4,111	$889	$101,886	$5,000	$4,189	$811	$101,622
6/30/20X4	$5,000	$4,075	$925	$100,962	$5,000	$4,189	$811	$100,811
12/31/20X4	$5,000	$4,038	$962	$100,000	$5,000	$4,189	$811	$100,000
	$50,000	$41,889	$8,111		$50,000	$41,889	$8,111	

			Effective				Straight-line	
		Interest	Discount	Book		Interest	Discount	Book
Date	Cash	Expense	Amortized	Value	Cash	Expense	Amortized	Value
1/1/20X0				$92,639				$92,639
6/30/20X0	$5,000	$5,558	$558	$93,198	$5,000	$5,736	$736	$93,375
12/31/20X0	$5,000	$5,592	$592	$93,790	$5,000	$5,736	$736	$94,111
6/30/20X1	$5,000	$5,627	$627	$94,417	$5,000	$5,736	$736	$94,847
12/31/20X1	$5,000	$5,665	$665	$95,082	$5,000	$5,736	$736	$95,583
6/30/20X2	$5,000	$5,705	$705	$95,787	$5,000	$5,736	$736	$96,320
12/31/20X2	$5,000	$5,747	$747	$96,534	$5,000	$5,736	$736	$97,056
6/30/20X3	$5,000	$5,792	$792	$97,326	$5,000	$5,736	$736	$97,792
12/31/20X3	$5,000	$5,840	$840	$98,166	$5,000	$5,736	$736	$98,528
6/30/20X4	$5,000	$5,890	$890	$99,056	$5,000	$5,736	$736	$99,264
12/31/20X4	$5,000	$5,943	$943	$100,000	$5,000	$5,736	$736	$100,000
	$50,000	$57,360	$7,360		$50,000	$57,360	$7,360	

Appendix C

Bond Issues between Interest Payment Dates

Bonds may be issued between interest payment dates. If this occurs, accrued interest must be accounted for.

Assume that a firm makes $100,000 bonds available for sale on January 1, 2014. They pay 12% interest per year, but with semi-annual payments on July 1 and January 1, each year. Only $40,000 (40%) of the bonds were sold on January 1, 2014, but many were not. Regardless, the bonds will pay $12,000 (12%) per year; $6,000 (6%) per semi-annual period. Effectively, 1% accrues each month.

Assume that $10,000 in bonds was sold on February 1, at par value. Interest for 1 month has accrued, and must be paid to the seller, as follows:

2/1/2014	Cash	$10,100	
	Interest payable		$100
	Bonds payable		$10,000

Assume that $10,000 in bonds was sold on March 1, at par value. Interest for 2 months has accrued, and must be paid to the seller, as follows:

3/1/2014	Cash	$10,200	
	Interest payable		$200
	Bonds payable		$10,000

Assume that $10,000 in bonds was sold on April 1, at par value. Interest for 3 months has accrued, and must be paid to the seller, as follows:

4/1/2014	Cash	$10,300	
	Interest payable		$300
	Bonds payable		$10,000

Assume that $10,000 in bonds was sold on May 1, at par value. Interest for 4 months has accrued, and must be paid to the seller, as follows:

5/1/2014	Cash	$10,400	
	Interest payable		$400
	Bonds payable		$10,000

Assume that $10,000 in bonds was sold on June 1, at par value. Interest for 5 months has accrued, and must be paid to the seller, as follows:

6/1/2014	Cash	$10,500	
	Interest payable		$500
	Bonds payable		$10,000

Assume that $10,000 in bonds was sold on June 16, at par value. Interest for 5 ½ months has accrued, and must be paid to the seller, as follows:

6/15/2014	Cash	$10,550	
	Interest payable		$550
	Bonds payable		$10,000

On July 1, 2014, the interest must be paid on the $100,000 bonds. Recall that the cash to be paid will be $100,000 multiplied by 12% multiplied by ½ of one year, or $6,000, as follows:

7/1/2014	Interest payable	$2,050	
	Interest expense	$3,950	
	Cash		$6,000

Effectively, the $6,000 includes the accrued interest we charged the purchaser of the bonds, at the date of sale (i.e.,$100+$200+$300+$400+$500+$550=$2,050).

Appendix D

Leases

A lease is a contractual agreement between a lessor (asset owner) and lessee (asset renter or tenant). The lessor receives cash payments, classified as rent revenue or income. The lessee makes cash payments, classified as rent expense. Leases fall into two broad categories: operating leases or capital leases.

Operating Leases

Operating leases are short-term leases. The lessor records receipts as rent revenue, as follows:

Cash	$xxx	
Rent revenue		$xxx

The lessee records payments as rent expense, as follows:

Rent expense	$xxx	
Cash		$xxx

Leases are classified as operating leases when the facts and circumstances or terms of the lease agreement suggest that the lessee has no intention of, effectively, purchasing the asset.

Capital Leases

Capital leases are long-term leases. Leases are classified as capital leases when the facts and circumstances or terms of the lease agreement suggest that the lessee has every intention of, effectively, purchasing the asset. In fact, the rules regarding the distinction and accounting treatment of a lease as a capital lease arose from something referred to as "off balance sheet financing." If the lease is, effectively, a purchase, the capital lease must be recorded and presented as though the lease is a purchase, placing the leased asset and related liability on the firm's book and balance sheet.

Appendix E

Pensions

Some firms, municipal, state and federal employers provide their employees with pension plans. A pension plan is a contractual agreement between employers and employees, providing for benefits or payments to employees after they retire. The employer may pay part or all of the cost of the pension, where the employer debits pension expense and credits cash for payments into the pension plan, as follows:

Pension expense	$xxx	
Cash		$xxx

Plan administrators receive employer payments, invest in assets, and make payments to retirees or beneficiaries. Pension plans are frequently administered by insurance and trust companies, making these services available for a fee.

In recent years, municipalities have had to enter into bankruptcy, due, largely, to the behaviors of politicians, promising more than was possible to get elected, followed by their inability to pay retirees the pensions they were promised. Some examples follow:

Notable Chapter 9 bankruptcies

- 1999: Prichard, Alabama, partly due to inability to pay pensions.
- 2008: Vallejo, California, partly due to inability to pay pensions.
- 2009: Prichard, Alabama, partly due to inability to pay pensions, especially state mandated pensions increases.
- 2011: Central Falls, Rhode Island, partly due to inability to pay pensions.
- 2013: Detroit, Michigan, partly due to inability to pay pensions.

Pensions can be *defined benefit* or *defined contribution* plans. These plans are funded based on actuarial assumptions, used to determine if a pension plan is overfunded, fully-funded, or underfunded, determined, as follows:

Overfunded:	Plan assets > Accumulated benefit obligation (liability)
Fully funded:	Plan assets = Accumulated benefit obligation (liability)
Underfunded:	Plan assets < Accumulated benefit obligation (liability)

This topic is covered in great detail in intermediate financial accounting courses. If you would like to watch some films where the funding of pension plans for for-profit corporations is addressed, watch the film, ***Wall Street*** (1987) or ***Other People's Money*** (1991). Both films make reference to the firm's fully funded pension plans.

Appendix F

Present Value of $1

Present Value (PV) of $1 = $1 \div (1 + r)^n$, where r = discount rate & n = number of periods.

How to use the table and communicate the results – Example 1
As the below table suggests, *the present value of the right to receive $1.00, 1 period from today, discounted at 1% per period is $0.99010*. Alternatively, *$0.99010 invested today, and generating a return of 1% per period, and invested for 1 period, will be worth $1.00* (i.e., future value), or $0.99010 x $(1.01)^1$ = $1.00, as follows:

PV of a $1

Periods	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	**0.99010**	0.98039	0.97087	0.96154	0.96154	0.94340	0.93458	0.92593	0.91743	0.90909

	$0.99010
multiplied by:	1.01
equals:	$1.00000

How to use the table and communicate the results – Example 2

As the below table suggests, *the present value of the right to receive $1.00, 10 periods from today, discounted at 10 percent per period is $0.38554*. Alternatively, *$0.38554 invested today, generating a return of 10 percent per period, and invested for 10 periods, will be worth $1.00* (i.e., future value), or $0.38554 x $(1.1)^{10}$ = $1.00, as follows:

PV of a $1										
Periods	**1%**	**2%**	**3%**	**4%**	**5%**	**6%**	**7%**	**8%**	**9%**	**10%**
10	0.90529	0.82035	0.74409	0.67556	0.61982	0.55839	0.50835	0.46319	0.42241	**0.38554**

	$0.38554	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
multiplied by:	**1.10**	
equals:	**$0.99999**	**(round to $1.00)**

PV of a $1

Prd	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.99010	0.98039	0.97087	0.96154	0.95238	0.94340	0.93458	0.92593	0.91743	0.90909
2	0.98030	0.96117	0.94260	0.92456	0.90703	0.89000	0.87344	0.85734	0.84168	0.82645
3	0.97059	0.94232	0.91514	0.88900	0.86384	0.83962	0.81630	0.79383	0.77218	0.75131
4	0.96098	0.92385	0.88849	0.85480	0.82270	0.79209	0.76290	0.73503	0.70843	0.68301
5	0.95147	0.90573	0.86261	0.82193	0.78353	0.74726	0.71299	0.68058	0.64993	0.62092
6	0.94205	0.88797	0.83748	0.79031	0.74622	0.70496	0.66634	0.63017	0.59627	0.56447
7	0.93272	0.87056	0.81309	0.75992	0.71068	0.66506	0.62275	0.58349	0.54703	0.51316
8	0.92348	0.85349	0.78941	0.73069	0.67684	0.62741	0.58201	0.54027	0.50187	0.46651
9	0.91434	0.83676	0.76642	0.70259	0.64461	0.59190	0.54393	0.50025	0.46043	0.42410
10	0.90529	0.82035	0.74409	0.67556	0.61391	0.55839	0.50835	0.46319	0.42241	0.38554
11	0.89632	0.80426	0.72242	0.64958	0.58468	0.52679	0.47509	0.42888	0.38753	0.35049
12	0.88745	0.78849	0.70138	0.62460	0.55684	0.49697	0.44401	0.39711	0.35553	0.31863
13	0.87866	0.77303	0.68095	0.60057	0.53032	0.46884	0.41496	0.36770	0.32618	0.28966
14	0.86996	0.75788	0.66112	0.57748	0.50507	0.44230	0.38782	0.34046	0.29925	0.26333
15	0.86135	0.74301	0.64186	0.55526	0.48102	0.41727	0.36245	0.31524	0.27454	0.23939
16	0.85282	0.72845	0.62317	0.53391	0.45811	0.39365	0.33873	0.29189	0.25187	0.21763
17	0.84438	0.71416	0.60502	0.51337	0.43630	0.37136	0.31657	0.27027	0.23107	0.19784
18	0.83602	0.70016	0.58739	0.49363	0.41552	0.35034	0.29586	0.25025	0.21199	0.17986
19	0.82774	0.68643	0.57029	0.47464	0.39573	0.33051	0.27651	0.23171	0.19449	0.16351
20	0.81954	0.67297	0.55368	0.45639	0.37689	0.31180	0.25842	0.21455	0.17843	0.14864
21	0.81143	0.65978	0.53755	0.43883	0.35894	0.29416	0.24151	0.19866	0.16370	0.13513
22	0.80340	0.64684	0.52189	0.42196	0.34185	0.27751	0.22571	0.18394	0.15018	0.12285
23	0.79544	0.63416	0.50669	0.40573	0.32557	0.26180	0.21095	0.17032	0.13778	0.11168
24	0.78757	0.62172	0.49193	0.39012	0.31007	0.24698	0.19715	0.15770	0.12640	0.10153
25	0.77977	0.60953	0.47761	0.37512	0.29530	0.23300	0.18425	0.14602	0.11597	0.09230
26	0.77205	0.59758	0.46369	0.36069	0.28124	0.21981	0.17220	0.13520	0.10639	0.08391
27	0.76440	0.58586	0.45019	0.34682	0.26785	0.20737	0.16093	0.12519	0.09761	0.07628
28	0.75684	0.57437	0.43708	0.33348	0.25509	0.19563	0.15040	0.11591	0.08955	0.06934
29	0.74934	0.56311	0.42435	0.32065	0.24295	0.18456	0.14056	0.10733	0.08215	0.06304
30	0.74192	0.55207	0.41199	0.30832	0.23138	0.17411	0.13137	0.09938	0.07537	0.05731
31	0.73458	0.54125	0.39999	0.29646	0.22036	0.16425	0.12277	0.09202	0.06915	0.05210
32	0.72730	0.53063	0.38834	0.28506	0.20987	0.15496	0.11474	0.08520	0.06344	0.04736
33	0.72010	0.52023	0.37703	0.27409	0.19987	0.14619	0.10723	0.07889	0.05820	0.04306
34	0.71297	0.51003	0.36604	0.26355	0.19035	0.13791	0.10022	0.07305	0.05339	0.03914
35	0.70591	0.50003	0.35538	0.25342	0.18129	0.13011	0.09366	0.06763	0.04899	0.03558
36	0.69892	0.49022	0.34503	0.24367	0.17266	0.12274	0.08754	0.06262	0.04494	0.03235
37	0.69200	0.48061	0.33498	0.23430	0.16444	0.11579	0.08181	0.05799	0.04123	0.02941
38	0.68515	0.47119	0.32523	0.22529	0.15661	0.10924	0.07646	0.05369	0.03783	0.02673
39	0.67837	0.46195	0.31575	0.21662	0.14915	0.10306	0.07146	0.04971	0.03470	0.02430
40	0.67165	0.45289	0.30656	0.20829	0.14205	0.09722	0.06678	0.04603	0.03184	0.02209

PV of a $1 (continued)

Prd	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.90090	0.89286	0.88496	0.87719	0.86957	0.86207	0.85470	0.84746	0.84034	0.83333
2	0.81162	0.79719	0.78315	0.76947	0.75614	0.74316	0.73051	0.71818	0.70616	0.69444
3	0.73119	0.71178	0.69305	0.67497	0.65752	0.64066	0.62437	0.60863	0.59342	0.57870
4	0.65873	0.63552	0.61332	0.59208	0.57175	0.55229	0.53365	0.51579	0.49867	0.48225
5	0.59345	0.56743	0.54276	0.51937	0.49718	0.47611	0.45611	0.43711	0.41905	0.40188
6	0.53464	0.50663	0.48032	0.45559	0.43233	0.41044	0.38984	0.37043	0.35214	0.33490
7	0.48166	0.45235	0.42506	0.39964	0.37594	0.35383	0.33320	0.31393	0.29592	0.27908
8	0.43393	0.40388	0.37616	0.35056	0.32690	0.30503	0.28478	0.26604	0.24867	0.23257
9	0.39092	0.36061	0.33288	0.30751	0.28426	0.26295	0.24340	0.22546	0.20897	0.19381
10	0.35218	0.32197	0.29459	0.26974	0.24718	0.22668	0.20804	0.19106	0.17560	0.16151
11	0.31728	0.28748	0.26070	0.23662	0.21494	0.19542	0.17781	0.16192	0.14757	0.13459
12	0.28584	0.25668	0.23071	0.20756	0.18691	0.16846	0.15197	0.13722	0.12400	0.11216
13	0.25751	0.22917	0.20416	0.18207	0.16253	0.14523	0.12989	0.11629	0.10421	0.09346
14	0.23199	0.20462	0.18068	0.15971	0.14133	0.12520	0.11102	0.09855	0.08757	0.07789
15	0.20900	0.18270	0.15989	0.14010	0.12289	0.10793	0.09489	0.08352	0.07359	0.06491
16	0.18829	0.16312	0.14150	0.12289	0.10686	0.09304	0.08110	0.07078	0.06184	0.05409
17	0.16963	0.14564	0.12522	0.10780	0.09293	0.08021	0.06932	0.05998	0.05196	0.04507
18	0.15282	0.13004	0.11081	0.09456	0.08081	0.06914	0.05925	0.05083	0.04367	0.03756
19	0.13768	0.11611	0.09806	0.08295	0.07027	0.05961	0.05064	0.04308	0.03670	0.03130
20	0.12403	0.10367	0.08678	0.07276	0.06110	0.05139	0.04328	0.03651	0.03084	0.02608
21	0.11174	0.09256	0.07680	0.06383	0.05313	0.04430	0.03699	0.03094	0.02591	0.02174
22	0.10067	0.08264	0.06796	0.05599	0.04620	0.03819	0.03162	0.02622	0.02178	0.01811
23	0.09069	0.07379	0.06014	0.04911	0.04017	0.03292	0.02702	0.02222	0.01830	0.01509
24	0.08170	0.06588	0.05323	0.04308	0.03493	0.02838	0.02310	0.01883	0.01538	0.01258
25	0.07361	0.05882	0.04710	0.03779	0.03038	0.02447	0.01974	0.01596	0.01292	0.01048
26	0.06631	0.05252	0.04168	0.03315	0.02642	0.02109	0.01687	0.01352	0.01086	0.00874
27	0.05974	0.04689	0.03689	0.02908	0.02297	0.01818	0.01442	0.01146	0.00912	0.00728
28	0.05382	0.04187	0.03264	0.02551	0.01997	0.01567	0.01233	0.00971	0.00767	0.00607
29	0.04849	0.03738	0.02889	0.02237	0.01737	0.01351	0.01053	0.00823	0.00644	0.00506
30	0.04368	0.03338	0.02557	0.01963	0.01510	0.01165	0.00900	0.00697	0.00541	0.00421
31	0.03935	0.02980	0.02262	0.01722	0.01313	0.01004	0.00770	0.00591	0.00455	0.00351
32	0.03545	0.02661	0.02002	0.01510	0.01142	0.00866	0.00658	0.00501	0.00382	0.00293
33	0.03194	0.02376	0.01772	0.01325	0.00993	0.00746	0.00562	0.00425	0.00321	0.00244
34	0.02878	0.02121	0.01568	0.01162	0.00864	0.00643	0.00480	0.00360	0.00270	0.00203
35	0.02592	0.01894	0.01388	0.01019	0.00751	0.00555	0.00411	0.00305	0.00227	0.00169
36	0.02335	0.01691	0.01228	0.00894	0.00653	0.00478	0.00351	0.00258	0.00191	0.00141
37	0.02104	0.01510	0.01087	0.00784	0.00568	0.00412	0.00300	0.00219	0.00160	0.00118
38	0.01896	0.01348	0.00962	0.00688	0.00494	0.00355	0.00256	0.00186	0.00135	0.00098
39	0.01708	0.01204	0.00851	0.00604	0.00429	0.00306	0.00219	0.00157	0.00113	0.00082
40	0.01538	0.01075	0.00753	0.00529	0.00373	0.00264	0.00187	0.00133	0.00095	0.00068

Appendix 10G

Present Value of an Annuity of $1 in Arrears

Present Value (PV) of an Annuity of $1 in Arrears = $(1 \div r) [1 – (1 \div (1 + r)^n)]$, where r = the discount rate and n = the number of periods.

How to use the table and communicate the results – Example 1
As the below table suggests, *the present value of the right to receive $1.00, 1 period from today, discounted at 1% per period is $0.99010*. *The present value of the right to receive $1.00 per period for 10 periods, discounted at 1% per period is $9.47130*, or $9.47130 x ($1.00) = $9.47, as follows:

PV of an Annuity of $1 in Arrears

Prd	1%
1	0.99010
2	1.97040
3	2.94099
4	3.90197
5	4.85343
6	5.79548
7	6.72819
8	7.65168
9	8.56602
10	9.47130

PV of an Annuity of $1 in Arrears

Prd	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.99010	0.98039	0.97087	0.96154	0.95238	0.94340	0.93458	0.92593	0.91743	0.90909
2	1.97040	1.94156	1.91347	1.88609	1.85941	1.83339	1.80802	1.78326	1.75911	1.73554
3	2.94099	2.88388	2.82861	2.77509	2.72325	2.67301	2.62432	2.57710	2.53129	2.48685
4	3.90197	3.80773	3.71710	3.62990	3.54595	3.46511	3.38721	3.31213	3.23972	3.16987
5	4.85343	4.71346	4.57971	4.45182	4.32948	4.21236	4.10020	3.99271	3.88965	3.79079
6	5.79548	5.60143	5.41719	5.24214	5.07569	4.91732	4.76654	4.62288	4.48592	4.35526
7	6.72819	6.47199	6.23028	6.00205	5.78637	5.58238	5.38929	5.20637	5.03295	4.86842
8	7.65168	7.32548	7.01969	6.73274	6.46321	6.20979	5.97130	5.74664	5.53482	5.33493
9	8.56602	8.16224	7.78611	7.43533	7.10782	6.80169	6.51523	6.24689	5.99525	5.75902
10	9.47130	8.98259	8.53020	8.11090	7.72173	7.36009	7.02358	6.71008	6.41766	6.14457
11	10.36763	9.78685	9.25262	8.76048	8.30641	7.88687	7.49867	7.13896	6.80519	6.49506
12	11.25508	10.57534	9.95400	9.38507	8.86325	8.38384	7.94269	7.53608	7.16073	6.81369
13	12.13374	11.34837	10.63496	9.98565	9.39357	8.85268	8.35765	7.90378	7.48690	7.10336
14	13.00370	12.10625	11.29607	10.56312	9.89864	9.29498	8.74547	8.24424	7.78615	7.36669
15	13.86505	12.84926	11.93794	11.11839	10.37966	9.71225	9.10791	8.55948	8.06069	7.60608
16	14.71787	13.57771	12.56110	11.65230	10.83777	10.10590	9.44665	8.85137	8.31256	7.82371
17	15.56225	14.29187	13.16612	12.16567	11.27407	10.47726	9.76322	9.12164	8.54363	8.02155
18	16.39827	14.99203	13.75351	12.65930	11.68959	10.82760	10.05909	9.37189	8.75563	8.20141
19	17.22601	15.67846	14.32380	13.13394	12.08532	11.15812	10.33560	9.60360	8.95011	8.36492
20	18.04555	16.35143	14.87747	13.59033	12.46221	11.46992	10.59401	9.81815	9.12855	8.51356
21	18.85698	17.01121	15.41502	14.02916	12.82115	11.76408	10.83553	10.01680	9.29224	8.64869
22	19.66038	17.65805	15.93692	14.45112	13.16300	12.04158	11.06124	10.20074	9.44243	8.77154
23	20.45582	18.29220	16.44361	14.85684	13.48857	12.30338	11.27219	10.37106	9.58021	8.88322
24	21.24339	18.91393	16.93554	15.24696	13.79864	12.55036	11.46933	10.52876	9.70661	8.98474
25	22.02316	19.52346	17.41315	15.62208	14.09394	12.78336	11.65358	10.67478	9.82258	9.07704
26	22.79520	20.12104	17.87684	15.98277	14.37519	13.00317	11.82578	10.80998	9.92897	9.16095
27	23.55961	20.70690	18.32703	16.32959	14.64303	13.21053	11.98671	10.93516	10.02658	9.23722
28	24.31644	21.28127	18.76411	16.66306	14.89813	13.40616	12.13711	11.05108	10.11613	9.30657
29	25.06579	21.84438	19.18845	16.98371	15.14107	13.59072	12.27767	11.15841	10.19828	9.36961
30	25.80771	22.39646	19.60044	17.29203	15.37245	13.76483	12.40904	11.25778	10.27365	9.42691
31	26.54229	22.93770	20.00043	17.58849	15.59281	13.92909	12.53181	11.34980	10.34280	9.47901
32	27.26959	23.46833	20.38877	17.87355	15.80268	14.08404	12.64656	11.43500	10.40624	9.52638
33	27.98969	23.98856	20.76579	18.14765	16.00255	14.23023	12.75379	11.51389	10.46444	9.56943
34	28.70267	24.49859	21.13184	18.41120	16.19290	14.36814	12.85401	11.58693	10.51784	9.60857
35	29.40858	24.99862	21.48722	18.66461	16.37419	14.49825	12.94767	11.65457	10.56682	9.64416
36	30.10751	25.48884	21.83225	18.90828	16.54685	14.62099	13.03521	11.71719	10.61176	9.67651
37	30.79951	25.96945	22.16724	19.14258	16.71129	14.73678	13.11702	11.77518	10.65299	9.70592
38	31.48466	26.44064	22.49246	19.36786	16.86789	14.84602	13.19347	11.82887	10.69082	9.73265
39	32.16303	26.90259	22.80822	19.58448	17.01704	14.94907	13.26493	11.87858	10.72552	9.75696
40	32.83469	27.35548	23.11477	19.79277	17.15909	15.04630	13.33171	11.92461	10.75736	9.77905

PV of an Annuity of $1 in Arrears (continued)

Prd	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.90090	0.89286	0.88496	0.87719	0.86957	0.86207	0.85470	0.84746	0.84034	0.83333
2	1.71252	1.69005	1.66810	1.64666	1.62571	1.60523	1.58521	1.56564	1.54650	1.52778
3	2.44371	2.40183	2.36115	2.32163	2.28323	2.24589	2.20958	2.17427	2.13992	2.10648
4	3.10245	3.03735	2.97447	2.91371	2.85498	2.79818	2.74324	2.69006	2.63859	2.58873
5	3.69590	3.60478	3.51723	3.43308	3.35216	3.27429	3.19935	3.12717	3.05763	2.99061
6	4.23054	4.11141	3.99755	3.88867	3.78448	3.68474	3.58918	3.49760	3.40978	3.32551
7	4.71220	4.56376	4.42261	4.28830	4.16042	4.03857	3.92238	3.81153	3.70570	3.60459
8	5.14612	4.96764	4.79877	4.63886	4.48732	4.34359	4.20716	4.07757	3.95437	3.83716
9	5.53705	5.32825	5.13166	4.94637	4.77158	4.60654	4.45057	4.30302	4.16333	4.03097
10	5.88923	5.65022	5.42624	5.21612	5.01877	4.83323	4.65860	4.49409	4.33893	4.19247
11	6.20652	5.93770	5.68694	5.45273	5.23371	5.02864	4.83641	4.65601	4.48650	4.32706
12	6.49236	6.19437	5.91765	5.66029	5.42062	5.19711	4.98839	4.79322	4.61050	4.43922
13	6.74987	6.42355	6.12181	5.84236	5.58315	5.34233	5.11828	4.90951	4.71471	4.53268
14	6.98187	6.62817	6.30249	6.00207	5.72448	5.46753	5.22930	5.00806	4.80228	4.61057
15	7.19087	6.81086	6.46238	6.14217	5.84737	5.57546	5.32419	5.09158	4.87586	4.67547
16	7.37916	6.97399	6.60388	6.26506	5.95423	5.66850	5.40529	5.16235	4.93770	4.72956
17	7.54879	7.11963	6.72909	6.37286	6.04716	5.74870	5.47461	5.22233	4.98966	4.77463
18	7.70162	7.24967	6.83991	6.46742	6.12797	5.81785	5.53385	5.27316	5.03333	4.81219
19	7.83929	7.36578	6.93797	6.55037	6.19823	5.87746	5.58449	5.31624	5.07003	4.84350
20	7.96333	7.46944	7.02475	6.62313	6.25933	5.92884	5.62777	5.35275	5.10086	4.86958
21	8.07507	7.56200	7.10155	6.68696	6.31246	5.97314	5.66476	5.38368	5.12677	4.89132
22	8.17574	7.64465	7.16951	6.74294	6.35866	6.01133	5.69637	5.40990	5.14855	4.90943
23	8.26643	7.71843	7.22966	6.79206	6.39884	6.04425	5.72340	5.43212	5.16685	4.92453
24	8.34814	7.78432	7.28288	6.83514	6.43377	6.07263	5.74649	5.45095	5.18223	4.93710
25	8.42174	7.84314	7.32998	6.87293	6.46415	6.09709	5.76623	5.46691	5.19515	4.94759
26	8.48806	7.89566	7.37167	6.90608	6.49056	6.11818	5.78311	5.48043	5.20601	4.95632
27	8.54780	7.94255	7.40856	6.93515	6.51353	6.13636	5.79753	5.49189	5.21513	4.96360
28	8.60162	7.98442	7.44120	6.96066	6.53351	6.15204	5.80985	5.50160	5.22280	4.96967
29	8.65011	8.02181	7.47009	6.98304	6.55088	6.16555	5.82039	5.50983	5.22924	4.97472
30	8.69379	8.05518	7.49565	7.00266	6.56598	6.17720	5.82939	5.51681	5.23466	4.97894
31	8.73315	8.08499	7.51828	7.01988	6.57911	6.18724	5.83709	5.52272	5.23921	4.98245
32	8.76860	8.11159	7.53830	7.03498	6.59053	6.19590	5.84366	5.52773	5.24303	4.98537
33	8.80054	8.13535	7.55602	7.04823	6.60046	6.20336	5.84928	5.53197	5.24625	4.98781
34	8.82932	8.15656	7.57170	7.05985	6.60910	6.20979	5.85409	5.53557	5.24895	4.98984
35	8.85524	8.17550	7.58557	7.07005	6.61661	6.21534	5.85820	5.53862	5.25122	4.99154
36	8.87859	8.19241	7.59785	7.07899	6.62314	6.22012	5.86171	5.54120	5.25312	4.99295
37	8.89963	8.20751	7.60872	7.08683	6.62881	6.22424	5.86471	5.54339	5.25472	4.99412
38	8.91859	8.22099	7.61833	7.09371	6.63375	6.22779	5.86727	5.54525	5.25607	4.99510
39	8.93567	8.23303	7.62684	7.09975	6.63805	6.23086	5.86946	5.54682	5.25720	4.99592
40	8.95105	8.24378	7.63438	7.10504	6.64178	6.23350	5.87133	5.54815	5.25815	4.99660

Chapter 11[1]

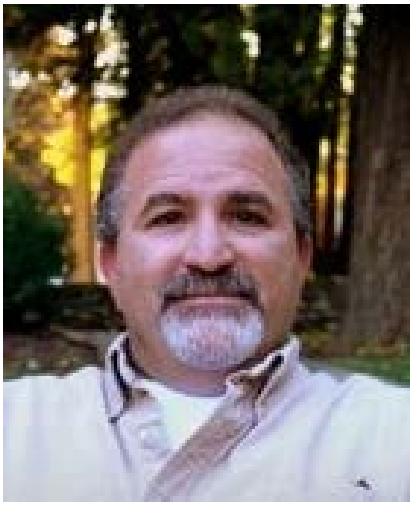
Accounting for Equity

Learning Objectives

- Distinguish between a closely or privately held and a publicly held corporation.
- List the advantages and disadvantages of the corporate form of organization.
- Identify characteristics of the corporate form of organization.
- Explain how par value common stock is accounted for when issued at par, above par, or below par or when issued in exchange for something other than cash.
- Explain how dividends are distributed between the owners of common and preferred stock.
- Record transaction involving the issuance of corporate stock: including both common stock and preferred stock.
- Record transactions involving cash dividends, stock dividends, and stock splits.
- Record transactions involving the purchase and sale of treasury stock and the retirement of treasury stock.
- Explain all components of retained earnings and how they are reported in the owners' equity section of a corporate balance sheet.
- Compute earnings per share (EPS), price-earnings (PE) ratio, dividend yield, and book value (BV).
- Explain the likely use and problems, if any, associated with the use of EPS, PE, dividend yield, and BV.

[1] Acknowledgement: An earlier version of this chapter was provided to all accounting faculty on January 19, 2015, for review notes, comments, and recommendations for improvement. Work on this text began in early 2014. The completion of this text was made possible through a spring 2015 sabbatical from West Chester University.

Professor Cataldo and Mr. Louis Toto have known each other for 50 years. Mr. Toto enlisted and served in the United States Army, where he was a training coordinator for a Field Artillery Battalion and held a Department of Defense Top Secret Security Clearance.



He has over 30 years of expertise working for Fortune 100 technology firms: Storage Technology (STK), Sun Microsystems, and, now, via mergers, Oracle America.

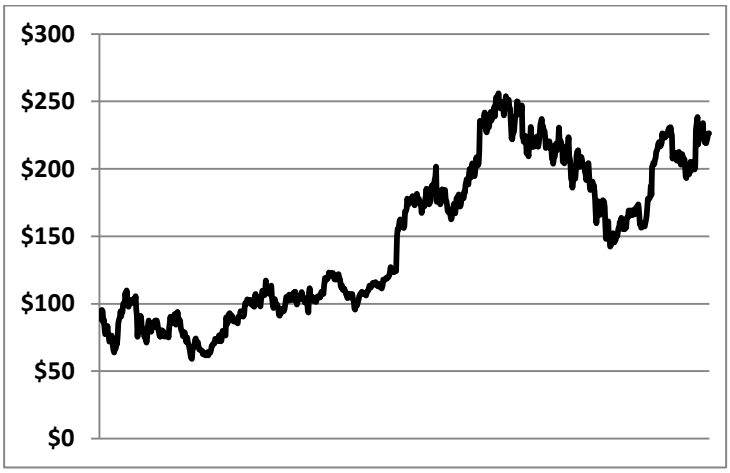
The majority of Lou's experience has been in customer support of computer hardware installations around the United States. He is now a Service Delivery Manager and functions as a single point of contact or liaison for his assigned accounts and the company.

Mr. Toto and his wife live in a wooded area in Northeast Oklahoma where they enjoy the outdoors and the serenity of natural settings. His hobbies include woodworking when time permits. He also enjoys football and follows his favorite teams, the University of Arizona Wildcats and the Kansas City Chiefs.

In addition to thousands of hours of corporate training, Mr. Toto holds the following degrees:

- B.S.B.A. Oklahoma Wesleyan University
- M.B.A. Oklahoma Wesleyan University

LinkedIn (NYSE: LNKD) had its initial public offering (IPO) on May 19, 2011. A business-oriented social networking service, it was founded in December 2002. The firm's stock price has done well, more than doubling, through November 2014.



A corporation is a legal entity, separate from its owners. Owners are called shareholders or stockholders. There are two broad classifications of the corporate form: (1) *closely* or *privately held*, usually with few stockholders and not trading its stock, publicly, and (2) *publicly held* or *traded* on an organized stock exchange and stock market. For US tax purposes, closely or privately held corporations are often subchapter S corporations and publicly held or traded corporations are often subchapter C corporations, where the subchapters reference the Internal Revenue Code (IRC).

Corporate Characteristics – Advantages and Disadvantages
The corporate form of organization offers advantages and disadvantages.

Advantages	Disadvantages
Separate legal entity	Government regulation
Limited liability	Corporate taxation
Transferability	
Continuous life	
No mutual agency	
Ease of capital accumulation	

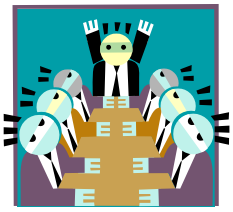
- **Separate legal entity.** The corporation is a legal entity, separate from its board of directors, officers, and other employees (agents).
- **Limited liability.** Stockholders are not liable for corporate acts or debts.
- **Transferability.** Shares of corporate stock can be purchased or sold, transferring ownership or control, all without any interruption in corporate activities.
- **Continuous life.** The death of a director, officer or employee does not result in the termination of corporate activities.
- **No mutual agency.** Corporations act through their agents – officers and managers. Generally, stockholders do not make decisions in the day to day operations of the corporation, and cannot be held liable for corporation decisions.
- **Ease of capital accumulation.** Corporations can be capitalized through the issuance or sale of corporate stock. Stockholders are not agents and, therefore, are not liable for corporate acts, shares are easily transferred, and the corporation's life is unlimited.
- **Government regulation.** Corporations are formed under the laws of the state it selects for incorporation, subjecting it to state regulation and control. Partnerships and sole proprietors avoid many of the government reports and related administrative costs associated with incorporation.[2]

[2] Approximately 54% of all publicly traded corporations in the US are incorporated in the state of Delaware, selected because of its long history and predictability of its corporate case law. The filings fees generate tax revenues so significant, that Delaware does not need a state sales tax.

- **Corporate taxation.** Subchapter C corporation profits are taxed at the corporate level and, again, at the individual level, when dividends are paid by the corporation and received by the stockholder. This results in double-taxation.

Characteristics of the Corporate Form of Organization and Management
Corporations are formed by filing articles of incorporation with the state and filing forms with the appropriate state agency. Fees are paid, the corporate charter is issued, and the corporation is formed. Investors purchase corporate stock, meet, and elect a board of directors. Directors hire executives, executives hire managers, and managers hire and oversee other employees.

- **Organization expenses.** Organization expenses (costs) include legal fees, promoters' fees, and other amounts involved in the acquisition of the corporate charter. These costs are immediately expensed or debited to organization expenses.
- **Corporate management.** Stockholders control the corporation through the election of the board of directors. Generally, each shareholder has one vote for each share of stock owned. The board of directors hires executives, executives hire managers, and managers hire other employees.



Stockholders
Stockholder rights are granted by the state in which the firm is incorporated. Whiles state laws vary, stockholders, generally, have the right to:

1. Vote their shares at stockholder meetings;
2. Sell or dispose of their shares of stock;
3. Purchase shares of additional issues of common stock to avoid dilution of their ownership interest (i.e., preemptive right);
4. Share in the receipt of dividends paid to other shareholders of the same class of stock; and
5. Share in any proceeds from liquidation.

Capital Stock – The Basics
Capital stock is the term used to describe any shares issued to obtain capital or *capitalize* a corporation through equity or owner financing. Corporate stock may be common stock or preferred stock. If only one class of stock is authorized, it is presumed to represent common stock. If more than one class of stock is issued, only one class is common stock.

Whether common stock or preferred stock, these classes of contributed capital may be issued at par, above par (at a premium) or even below par (at a discount). If these terms (i.e., par, premium and discount) sound familiar, they should. As you progress through this chapter, it may be a good time to review the chapter on bonds, where it was illustrated that debt securities may also be issued at par, premium or discount.

Common stock and the rules guiding these "equity securities" are governed by the state of incorporation. Delaware is the most popular state of incorporation for the vast

majority of publicly traded firms in the US, due to its rich history and predictable, precedent-based laws with respect to shareholder and management rights and obligations. Regardless of the state of incorporation, the firm's corporate charter (which can be amended) provides for a number of *authorized* shares of common stock. No journal entry is required for stock authorization.

In addition to the number of shares authorized, an investor (or potential investor) may be interested in the number of shares *issued* and *outstanding*. Issued shares are those shares issued, but some may have been purchased back from shareholders, by the firm, and may no longer be outstanding. Outstanding shares are those held by stockholders. Generally, all of these measures are disclosed by publicly traded firms on the face of the firm's balance sheet or in the firm's footnotes to their financial statements, as regularly reported to shareholders and filed with the Securities and Exchange Commission. Below is an example of such a disclosure for Facebook (September 30, 2013), where there are two classes of stock:

> **Stockholders' equity:**
>
> **Common stock, $0.000006 par value; 5,000 million Class A shares authorized, 1,869 million and 1,671 million shares issued and outstanding, including 6 million and 2 million outstanding shares subject to repurchase as of September 30, 2013 and December 31, 2012, respectively; 4,141 million Class B shares authorized, 584 million and 701 million shares issued and outstanding, including 7 million and 11 million outstanding shares subject to repurchase as of September 30, 2013 and December 31, 2012, respectively.**

Stock is sold directly or indirectly. In both cases, the firm's stock is promoted. In some cases and underwriter, broker/dealer, or investment banker will buy the stock from the corporation at a guaranteed, fixed price per share, and accept the risk associate with any gains or losses from its resale. Below is an example, where the underwriters were listed prior to the Facebook initial public offering (IPO):[3]

> **Social media giant Facebook Inc. added 25 new underwriters to the team of banks taking the company public. The deal, which is expected later this spring, expands the list from the six banks that had been on the cover of its prospectus from the start. It's not unusual for 25 to 30 banks to work on large offerings such as Facebook's.**
> **Joining the underwriting team are: Citigroup Inc., Credit Suisse Group, Deutsche Bank AG, RBC Capital Markets, Wells Fargo & Co., Blaylock Robert Van LLC, BMO Capital Markets Corp., C.L. King & Associates, Inc., Cabrera Capital Markets LLC, CastleOak Securities L.P., Cowen & Co., Lazard Capital Markets LLC, Lebenthal & Co., Loop Capital Markets LLC, M.R. Beal & Co., Macquarie Capital (USA) Inc., Muriel Siebert & Co., Oppenheimer & Co., Pacific Crest Securities LLC, Piper Jaffray & Co., Raymond James & Associates, Samuel A. Ramirez & Co., Stifel, Nicolaus & Co., The Williams Capital Group L.P., and William Blair & Co. They join the original team of six: Morgan Stanley, JPMorgan Chase & Co., Goldman Sachs Group Inc., Bank of America Merrill Lynch, Barclays PLC's Capital Inc., and Allen & Co.**

The stock market comprised of willing buyers and willing sellers of stock, determines the value of the corporation's stock. The price per share at which stock trades between

[3] Available at <http://www.marketwatch.com/story/facebook-adds-25-new-banks-to-ipo-underwriters-2012-03-08\>.

investors, after issued by the corporation, does not have any impact on the issuing corporation's stockholders' equity. These trades occur in what is referred to as the "secondary" market.

Different classes of stock can have different rights. For example, one class of stock can have one voting right per share, another class of stock can have ten votes per share, and still another class of stock might have no voting rights, but have other rights – perhaps a priority with respect to dividends.

Par value stock establishes a minimum legal capital that buyers must contribute to the corporation or be subject to paying at some future date. In the case of Facebook, the par value is **$0.000006** per share, as follows:

Stockholders' equity:
Common stock, $0.000006 par value; 5,000 million Class A shares authorized, 1,869 million and 1,671 million shares issued and outstanding, including 6 million and 2 million outstanding shares subject to repurchase as of September 30, 2013 and December 31, 2012, respectively; 4,141 million Class B shares authorized, 584 million and 701 million shares issued and outstanding, including 7 million and 11 million outstanding shares subject to repurchase as of September 30, 2013 and December 31, 2012, respectively.

Par value represents the minimum legal capital required to be retained by the corporation for the protection of corporate creditors. Recall that the corporate shareholders enjoy limited liability to creditors. In the event of corporate bankruptcy and/or liquidation, corporate creditors are paid their claims from the corporate assets. Since A=L+OE, these minimum capital amounts provide for a self-imposed restriction on any return of capital to shareholders, prior to the payment of creditor claims.

Some states provide for *no par* stock. No par stock can be issued at any price without any consequences to shareholders, since there is no possibility of any minimum legal capital deficiency. *Stated value* stock is also no par stock. The directors assign a "stated" value per share to establish the minimum amount of legal capital per share.

Stockholders' Equity

A corporation's *equity* or *stockholders' equity* can also be referred to as *shareholders' equity* or *capital*. It includes contributed capital for all classes of stock authorized, issued and outstanding, as well as retained earnings, as follows:

Stockholders' Equity			
Common Stock - $1 par value; 10,000 shares authorized;			
1,000 shares issued and outstanding	$1,000		
Common Stock - Paid in Capital in Excess of Par	$9,000	$10,000	
Preferred Stock - $100 par value	$5,000		
Preferred Stock - Paid in Capital in Excess of Par	$0	$5,000	$15,000
Retained Earnings			$20,000
Less Cost of Treasury Stock			$5,000

Total Stockholders' Equity	**$40,000**

Common Stock Issued at, above and below Par Value

Par value is established in a corporation's articles of incorporation. It can be issued at, above or below par value, for cash or for noncash assets. In practice, a corporation will select a par value that is very low, and stock is likely to be issued at a market price that is above par value. When issued, the sale of stock must recorded for both par value and excess of par value components. Amounts in excess of par value can be referred to as *paid in capital in excess of par* or *contributed capital in excess of par*.

Assume that Fuller, Incorporated issues 1,000 shares of $1 par value common stock, for cash, at the current market price of $10 per share, as follows:

Feb. 15	Cash	$10,000	
	Common Stock – Par		$1,000
	Common Stock – Paid in Capital in Excess of Par		9,000
	To record the sale and issue of 1,000 shares of common stock at $10 per share.		

Balance sheet presentation of this initial capitalization and the stockholders' equity section of Fuller's balance sheet follow:

Stockholders' Equity		
Common Stock - $1 par value; 10,000 shares authorized;		
1,000 shares issued and outstanding	$1,000	
Common Stock - Paid in Capital in Excess of Par	9,000	$10,000
Retained Earnings		-0-
Total Stockholders' Equity		$10,000

Alternatively, to illustrate the impact on these accounts, assume that Fuller, Incorporated issues 1,000 shares of $1 par value common stock, for cash, but at the current market price of $9 per share, as follows:

Feb. 15	Cash	$9,000	
	Common Stock – Par		$1,000
	Common Stock – Paid in Capital in Excess of Par		8,000
	To record the sale and issue of 1,000 shares of common stock at $9 per share.		

Balance sheet presentation of this initial capitalization and the stockholders' equity section of Fuller's balance sheet follow:

Stockholders' Equity		
Common Stock - $1 par value; 10,000 shares authorized;		
1,000 shares issued and outstanding	$1,000	
Common Stock - Paid in Capital in Excess of Par	8,000	$9,000
Retained Earnings		-0-
Total Stockholders' Equity		$9,000

In both of the above examples, stock was issued at a premium to its par value, and for cash. The below illustrates how to account for a transaction involving the issue of common stock at a premium, but for a noncash asset. The stock is thinly traded or the Fuller, Incorporated in closely held, there is no readily available market for the stock, but the land received in exchange for 1,000 shares of common stock has a recently appraised and fair market value of $11,000:

Feb. 15	Land	$11,000	
	Common Stock – Par		$1,000
	Common Stock – Paid in Capital in Excess of Par		10,000
	To record the issue of 1,000 shares of common stock in exchange for land valued at $11,000.		

Balance sheet presentation of this initial capitalization and the stockholders' equity section of Fuller's balance sheet follow:

Stockholders' Equity		
Common Stock - $1 par value; 10,000 shares authorized;		
1,000 shares issued and outstanding	$1,000	
Common Stock - Paid in Capital in Excess of Par	10,000	$11,000
Retained Earnings		-0-
Total Stockholders' Equity		$11,000

It is possible, though extraordinarily unlikely, that a firm could sell stock for less than its par (or stated) value. Very low par values are usually selected by firms, just as was the case with Facebook, at $0.000006 par value per share. While most states prohibit this practice, any buyers at below par are contingently liable to creditors for the amount of the discount. If stock is issued at a discount, the amount by which issue price is below par is debited to a discount on common stock account. This is a contra account, it is not an expense, and it does not appear on the income statement.

Note that in each and every example provided above, the common stock – par account is credited for the par value of the common stock. There are no exceptions to this pattern.

Stockholders' Equity			
Common Stock - $1 par value; 10,000 shares authorized;			
1,000 shares issued and outstanding	$1,000		
Common Stock - Paid in Capital in Excess of Par	$9,000	$10,000	
Preferred Stock - $100 par value	$5,000		
Preferred Stock - Paid in Capital in Excess of Par	$0	$5,000	$15,000
Retained Earnings			$20,000
Less Cost of Treasury Stock			$5,000
Total Stockholders' Equity			$40,000

Preferred Stock Issued at Par Value

Par value for preferred stock is accounted for in much the same way as accounted for with common stock. Assume that all three of the transactions described, above, in the section on common stock, occurred for preferred stock instead of common stock:

Feb. 15	Cash	$10,000	
	Preferred Stock – Par		$1,000
	Preferred Stock – Paid in Capital in Excess of Par		9,000
	To record the sale and issue of 1,000 shares of preferred stock at $10 per share.		

Feb. 15	Cash	$9,000	
	Preferred Stock – Par		$1,000
	Preferred Stock – Paid in Capital in Excess of Par		8,000
	To record the sale and issue of 1,000 shares of preferred stock at $9 per share.		

Feb. 15	Land	$11,000	
	Preferred Stock – Par		$1,000
	Preferred Stock – Paid in Capital in Excess of Par		10,000
	To record the issue of 1,000 shares of preferred stock in exchange for land valued at $11,000.		

Stockholders' Equity

Stock can be issued at par, no par, or stated value. This will depend on the state law that applies and is in effect for the state in which the corporation has been incorporated. A firm does not have to operate in the same state that it is incorporated in. For example, more than 54% of the publicly traded firms are incorporated in the state of Delaware. More than 8% of the publicly traded firms are incorporated in the state of Nevada. Therefore, more than 62% percent of the publicly traded corporations are incorporated in 2 states, Delaware and Nevada. These states are competing in "the market for corporate law" to attract tax revenues, in the form of corporate filing fees and have very differentiated products.

Issuing Stock – Par Value

Par value is established by the corporation and has a very specific meaning, based on the state of incorporation and the articles of incorporation or amended articles of incorporation. While state laws vary, generally, par value represents minimum legal capital that must remain in the corporation and may not be distributed to shareholders. This is for the protection of creditors, since creditors receive any distributions, in the event of bankruptcy and/or liquidation, before any remainder may be distributed to shareholders.

Practically, since the corporation establishes par value, it is to the advantage of the corporation to impose, on itself, the least possibly restrictive or lowest possible par value. Still, while par value has little meaning practical meaning or value, the legal distinction has resulted in an accounting distinction that is established, maintained, and disclosed.

Stock or "Common Stock Issued at Discount" ($500), represents a stock sale below par value. This condition is only likely to occur in the event of the initial issuance or stock sale when the worst possible news has been released and/or bankruptcy is anticipated and little or no residual or distribution from the liquidation is anticipated for the shareholder.

Issuing Stock – No Par Value

If a stock, trading at $25 per share has a "no par" stock and 1,000 shares are issued, you would make the following journal entry:

Cash	$25,000	
Common Stock		$25,000

All of the $25,000 is "legal capital."

Issuing Stock – Stated Value

Everything that applies to issuing stock at par value applies to stock issued at stated value. This represents nothing more than a change in the term or account title used. This term may be used in cases where a stock has no par value.

If a stock, trading at $25 per share has a "stated" value of $1, and 1,000 shares are issued, you would make the following journal entry:

Cash	$25,000	
Common Stock – Stated Value		$1,000
Common Stock – Paid in Capital in Excess of Stated Value		24,000

If a stock, trading at $25 per share has a "stated" value of $1, and 1,000 shares are issued, you would make the following journal entry:

Cash	$25,000	
Common Stock – Stated Value		$1,000
Common Stock – Paid in Capital in Excess of Stated Value		24,000

Issuing Stock for Noncash or Nonmonetary Assets

When a corporation issues stock in exchange for noncash or nonmonetary assets other than cash, you simple debit the noncash or nonmonetary account. Assume the same fact pattern that was used above, but instead of issuing shares for $25,000 cash; you issued the same number of share of stock in exchange for land with an appraised and fair market value of $25,000:

Land	$25,000	
Common Stock – Par Value		$1,000
Common Stock – Paid in Capital in Excess of Par Value		24,000

Alternatively, a corporation might issue shares of stock to stock promoters in exchange for services and toward the organization of the corporation. Again, assuming the same fact patterns used above, assume that the fair value of these services are $25,000:

Organization Expenses	$25,000	
Common Stock – Par Value		$1,000
Common Stock – Paid in Capital in Excess of Par Value		24,000

As the above examples illustrate, stock can be issued for cash, other noncash or nonmonetary assets, or expenses. Since assets are increased with a debit and expenses are increased with a debit, the debit and credit mechanics work in both cases.

Dividends

Cash or stock dividends may be paid to stockholders.

Cash Dividends

A firm might decide to pay cash dividends to stockholders. This decision is made by the corporation's board of directors. The board of directors will evaluate and consider amounts needed to fund ongoing operations and available in cash and retained earnings accounts, the firm's growth rates and opportunities, anticipated emergencies, expected opportunities, and the need to repay debt.

The payment of cash dividends involves three important dates:

1. **Date of declaration** is that date when the directors of the corporation vote to declare and pay a dividend. It is at this point in time when a legal liability is created between the corporation and its shareholders. An accounting entry is required to record this dividend payable, a liability.
2. **Date of record** is the effective date of stock ownership associated with the receipt of the dividend. If you own the stock on this date of record, you will receive the

dividend declared by the corporation's board of directors. No accounting entry is required on this date.

3. **Date of payment** is the date on which the payment of the dividend is made. The date after the date of payment is referred to as an ex-dividend date. An accounting entry is required to record the payment of the dividend payable on this date.

An actual example of a dividend announcement follows:

> **Boston, MA, 11/25/2013 (nysepost) – Nike Inc (NYSE:NKE) announced that the company's Board of Directors has declared its quarterly cash-dividend of $0.24/share on its outstanding Class A & Class B Common-Stock. This dividend is payable on 6th January 2014, to shareholders of record on 16th December 2013.**[4]

The date of declaration was November 25, 2013. The date of record is December 16, 2013. The date of payment is January 6, 2014. To keep the illustration simple, assume that Nike has only 1,000 shares of stock issued and outstanding ($1,000 multiplied by $0.24 per share equals $240). The necessary journal entries follow:

On the date of declaration:

Nov. 25	Retained Earnings	$240	
	Dividends Payable		$240

On the date of record refers to "stockholders" at this date of record. So, if you own a stock on December 16 and December 16 is the "date of record," you, as the stockholder, will receive the dividend, even if you sell the stock on December 17, or the "ex-dividend" date. Therefore, there is no entry on the corporate books for this date or record event date:

Dec. 16	No Entry	

On the date of payment:

Jan. 6	Dividends Payable	$240	
	Cash		$240

Cash Dividends in Cases of a Retained Earnings Deficit

Retained earnings, for a profitable firm, should have a credit balance. However, it is possible for a corporation with accumulated losses and/or a history of paying dividends to have a debit balance in their retained earnings account. These firms have a retained earnings deficit.

[4] Available at <http://nysepost.com/nike-inc-nysenke-declared-its-quarterly-cash-dividend-13482>.

Most states have produced a corporate law that prohibits the payment of cash dividends to stockholders in cases where they have a retained earnings deficit. This legal restriction preserves capital and protects creditors by preventing the corporation from liquidating and distributing assets to stockholders when a firm is under financial stress.

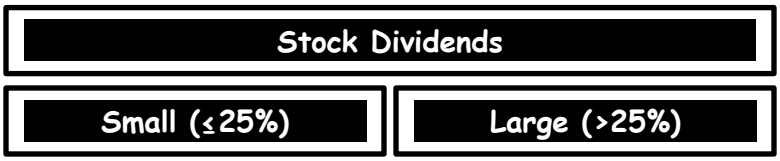
Depending on the state, however, some states permit the distribution of a "liquidating" cash dividend, which is nothing more than a "return of capital" contributed by shareholders. These represent atypical or unusual cases, but must be addressed.

Stock Dividends
A stock dividend is declared by a corporation's board of directors. It is a distribution of additional shares to stockholders. A stock dividend does not reduce assets and equity, but a portion of equity from retained earnings is transferred from earned capital to contributed capital or "capitalized."

Why Do a Stock Dividend?
When you go grocery shopping, you probably buy a 6-pack or 12-pack or 24-pack of soft drinks. You could, of course, purchase a single can or bottle of Pepsi or Coke or other soft drinks. A comparable practice exists in the stock market. Most think in terms of 100 share blocks of stock. Lesser numbers of shares are referred to as "odd lots."

While many may be able to purchase 100 share blocks of a $20 stock, at a total cost of $2,000 plus brokerage buying commission, others cannot. For this reason, a firm might decide to, effectively, reduce the price per share for a 100 share block of stock. They could prefer to do a stock split, but that topic will be covered in the next section.

Two Types of Stock Dividends
There are two types of stock dividends and their accounting treatment differs; they are small and large stock dividends:



A small stock dividend is operationally defined as a stock dividend of 25%or less. A large stock dividend is operationally defined as a stock dividend of more than 25%. In both cases, retained earnings are debited or capitalized for the par value of the stock dividend.

The Small Stock Dividend (≤25%)
Assume a firm has common stock with a par value of $1 per share, trading at a market price of $25 per share. There are 1,000 shares issued and outstanding when the Board of Directors issues a 10% stock dividend (1,000 shares multiplied by 10% equals an additional 100 shares). The following journal entry would be required.

Retained Earnings	$2,500	
Common Stock Dividend Distributable – par value		$100
Paid in Capital in Excess of par value – Common Stock		$2,400

For a small stock dividend: (1) retained earnings are capitalized at the market price per share of $25, (2) common stock dividend distributable is a temporary classification that will be closed out to the common stock – par value account, when the stock dividend is issued, and (3) paid in capital in excess of par value – common stock, is the plug or excess of market value over par value for the common stock.

Common Stock Dividend Distributable – par value	$100	
Common Stock – par value		$100

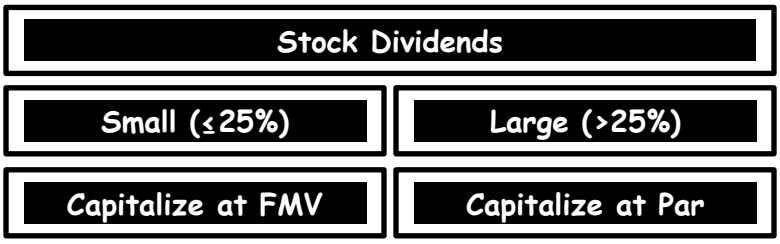
When issued, the common stock – par value account is credited and the temporary, common stock dividend distributable account is zeroed out or debited. Amount going into and out of the common stock dividend distributable account are always at par.

The Large Stock Dividend (>25%)

For a large stock dividend, most states require that par or stated value be capitalized from retained earnings. Using the same fact pattern, the journal entry follows:

Retained Earnings	$100	
Common Stock – par value		$100

To summarize, a small stock dividend results in the capitalization of retained earnings at the stock price or fair market value; a large stock dividend results in the capitalization of retained earnings at the stock par value, as follows:



A large stock dividend is sometimes confused with a stock split, which is accounting for differently, as explained in the next section.

Stock Splits

A stock split results in the distribution of additional shares to shareholders and can be done in any ratio. An actual example for MasterCard (NYSE: MA), announced on December 10, 2013, illustrates the motivation for a stock split, as follows:

As part of the 10-for-1 stock split, shareholders will receive nine additional shares of MasterCard common stock for each share they own. The move is aimed at making MasterCard's share price, which exceeds $760, more accessible to retail investors.[5]

No journal entry is made for a stock split. If you owned 100 shares prior to the stock split, you will own 1,000 shares after the stock split. However, the par value per share is modified. In the above case, the par value per share for MasterCard stock will be one-tenth of the pre-split price after the stock split. No change occurs to the retained earnings or related paid-in-capital accounts.

Preferred Stock

The two basic classifications of stock issued to shareholders are common stock and preferred stock. However, there can be more than one class of preferred stock. Preferred stock provides for preferential treatment, usually with respect to the payment of dividends and the distribution of assets in the event of liquidation. Accounting for preferred stock is very similar to accounting for common stock, with slightly modified account titles.

If a preferred stock, trading at $25 per share has a "par" value of $1, and 1,000 shares are issued, you would make the following journal entry:

Cash	$25,000	
Preferred Stock – Par Value		$1,000
Preferred Stock – Paid in Capital in Excess of Par Value		24,000

Preferred Stock – Preferential Treatment with respect to Dividends

Preferred stock usually provides preferred stock shareholders with a preference with respect to dividends. Effectively, dividends must, first, be paid to preferred stock shareholders, before any payment is made to common shareholders. This, of course, does not guarantee a payment of dividends for either preferred or common shareholders. The dividend preference is usually stated as a percentage of preferred stock par values.

For example, a preferred stock with a par value of $10 might have a dividend preference stated at 8%. Before any dividend can be paid to a common shareholder, a dividend must, first, be paid to the preferred shareholder, at $0.80 ($10 multiplied by 8%) per year or $0.20 per quarter.

Preferred stock can be cumulative or noncumulative, as follows:

[5] Available at <http://www.foxbusiness.com/industries/2013/12/10/mastercard-launches-10-for-1-stock-split-boosts-dividend-83/>.

A cumulative preferred stock dividend accumulates and a "passed" dividend or failure to pay this preferred stock dividend results in an "arrearage" that must be paid, first, again, before any dividend is paid to the common shareholders. A noncumulative preferred stock dividend does not accumulate.

Assume that a firm has a preferred stock with a par value of $10 and a stated dividend preference at 8% of par. The firm had a net loss for 2012, 2013, and 2014, and the board of directors decided to "pass" on the dividend for all 3 years. Again, before any dividend can be paid to a common shareholder, a dividend must, first, be paid to the preferred shareholder, at $0.80 ($10 multiplied by 8%) per year or $0.20 per quarter. If the firm has a very good 2015, and net income, the below illustrates a case where the board of directors approves a dividend for the common shareholder, in both cumulative and noncumulative preferred stock cases, where the common shareholder receives a dividend of $0.10 per share for 2015:

Calendar Year	Preferred Cumulative	Preferred Noncumulative	Common
2012	$0.00	$0.00	$0.00
2013	$0.00	$0.00	$0.00
2014	$0.00	$0.00	$0.00
2015	$3.20	$0.80	$0.10

Calendar Year	Preferred Cumulative	Preferred Noncumulative	Common
2012	$0.80 arrearage	no arrearage	$0.00
2013	$0.80 arrearage	no arrearage	$0.00
2014	$0.80 arrearage	no arrearage	$0.00
2015	$3.20	$0.80	$0.10

Note that the cumulative preferred stock accumulates an arrearage that need not be paid, but must be paid before any dividends are paid to common shareholders.

A participating preferred stock can participate in dividends beyond stated amounts. A nonparticipating preferred stock cannot participate in dividends exceeding stated amounts, as follows:

A participating preferred stock can receive more than $0.80 per year. A nonparticipating preferred stock cannot receive more than the stated amount of $0.80 per year.

Preferred Stock – Convertibles
A firm might decide to issue convertible preferred stock. This stock would have a conversion feature, at a fixed conversion ratio (e.g., 1 preferred share converts to 10 common shares).

Preferred Stock – Callable
A firm might decide to issue callable preferred stock. Effectively, this is an explicitly stated stock retirement feature. The call feature has a "call price" or redemption value. Use of this feature might be combined with and include a requirement to pay any dividend arrearage.

Preferred Stock – Reasons for Issuing
Corporations issue preferred stock for a variety of reasons. Since it is more typical for common stock to represent "voting" shares, the issuance of preferred shares without voting rights allows common shareholders to retain votes and control of the firm, its board of directors, and the management team.

Alternatively, since earnings per share is computed and based only on the number of common shares outstanding, issuing preferred stock avoids dilution of common stockholder earnings per share measures.

Below is an example of the presentation of the stockholders' equity section of a balance sheet. In this case, the firm has issued (1) common stock, (2) preferred stock, and (3) has purchased common stock in the open market to reduce the number of common shares outstanding for the computation of earnings per share, which is based on common shares outstanding.

Stockholders' Equity			
Common Stock - $1 par value; 10,000 shares authorized;			
1,000 shares issued and outstanding	$1,000		
Common Stock - Paid in Capital in Excess of Par	$9,000	$10,000	
Preferred Stock - $100 par value	$5,000		
Preferred Stock - Paid in Capital in Excess of Par	$0	$5,000	$15,000
Retained Earnings			$20,000
Less Cost of Treasury Stock			$5,000
Total Stockholders' Equity			$30,000

The next section introduces the accounting treatment for treasury stock, which is illustrated in the above.

Treasury Stock

Treasury stock is stock that has been issued, but was reacquired by the corporation. Reasons why a firm might reacquire its own stock are not limited to, but include:

1. the consumption of surplus cash not otherwise required for operations or expansion;
2. the purchase of shares at a favorable price and to show that management is confident in the future appreciation of the stock price per share and corporate operations;
3. the purchase of shares for reissuance for the acquisition of another firm; and
4. the purchase of shares to increase the price per share and block a hostile takeover, which is more likely to occur when a firm's stock price is trading too low or at a favorable price per share.

Treasure stock purchases reduce the corporation's assets and equity by equal amounts, as the below example, using the *cost method* of accounting for treasury stock, illustrates:

Dec. 20	Treasury stock	$25,000	
	Cash		$25,000

In the above example, the corporation purchased 1,000 shares of its own stock at $25 per share. Treasury stock is a contra equity account, and the open market purchase resulted in a debit to equity and a credit to cash. The following table illustrates how the $25,000 purchase of treasury stock is presented in the equity section of the firm's balance sheet, both before and after the open market purchase.

Before treasury stock purchase		After treasury stock purchase	
Common stock	$1,000,000	Common stock	$1,000,000
Retained earnings	$250,000	Retained earnings	$250,000
		Less: Cost of treasury stock	($25,000)
Total stockholders' equity	$1,250,000	Total stockholders' equity	$1,225,000

An alternative to the *cost method* of accounting for treasury stock is the *par value method*. This latter method is covered in intermediate financial accounting courses.

Treasury Stock – Reissued

Treasury stock can be reissued or resold (1) at cost, (2) above cost, or (3) below cost.

Recall that 1,000 shares of the firm's stock were purchased in the open market at $25 per share in the above example and on December 20. We will assume that these same 1,000 shares of stock is reissued or resold (1) at cost ($25 per share), (2) above cost ($30 per share), or (3) below cost ($20 per share), as follows:

1,000 shares of stock is reissued or resold (1) at cost ($25 per share) on the following January 20:

Jan. 20	Cash	$25,000	
	Treasury stock		$25,000

1,000 shares of stock is reissued or resold (2) above cost ($30 per share) on the following January 20:

Jan. 20	Cash	$30,000	
	Paid-in-capital, Treasury stock		$5,000
	Treasury stock		$25,000

Note that a gain is not (and is never) reported on the sale or reissuance of treasury stock. The additional $5 per share increased equity, as it is credited to the paid-in-capital, treasury stock account.

1,000 shares of stock is reissued or resold (3) below cost ($20 per share) on the following January 20:

Jan. 20	Cash	$20,000	
	Paid-in-capital, Treasury stock	$-0-	
	Retained earnings	$5,000	
	Cash		$25,000

In the above case, the reissuance at $5 less per share results in a debit to retained earnings. If, however, this had not been the first and only purchase of treasury stock, any balance in the paid-in-capital, treasury stock account would, first, be debited and exhausted, and any remaining balance would be debited to the retained earnings account. It is, for this reason, the paid-in-capital, treasury stock account is included in the above journal entry and shown, even though at a zero ($-0-).

Think in terms of "contributed capital" and "earned capital," where both common and preferred stock have par and paid-in-capital in excess of par contributed capital components or partitions. Paid-in-capital in excess of par components can be exhausted and retained earnings, in cases where related paid-in-capital in excess of par accounts have been exhausted, can be "capitalized."

Treasury Stock – Retirement

Corporations buy and retire stock when they believe that the stock is trading at a discount to its true value. After all, executives are "insiders" and should understand these matters. These retirements are permitted when they do not jeopardize creditors and stockholders.

When stock is purchased, in the secondary market, and purchased for retirement, all capital amounts relating to the retired shares are removed. If the purchase price exceeds the amount removed, this amount is debited to retained earnings. If the purchase price falls short of the amount removed, this amount is credited to the "paid-in capital from retirement of stock" account. Effectively, the firm's assets and equity are reduced by the amount paid for the stock retirement.

Statement of Retained Earnings

Retained earnings are earnings retained, and not paid out in dividends, since the inception of the corporation. Retained earnings are part of the stockholders' equity section of the balance sheet and all amounts in the retained earnings account are in "after tax" dollars.

Restricted and Appropriated Retained Earnings

Retained earnings might be restricted by statute or law, in that treasury stock may only be purchased up to the amount of the amount of retained earnings. Similarly, loan agreements may contain contractual restrictions on the amount of retained earnings the corporation is permitted to pay to stockholders' to avoid risk or high debt-to-equity ratios. Retained earnings might be appropriated, as required by the board of directors, to assure the retention of economic resources for long-term corporate needs.

Prior Period Adjustments

Changes in accounting principles or the correction of errors may require prior period adjustments. They are reported net of tax. All inflows and outflows to retained earnings are in after-tax terms.

Prior period adjustments require a change in the beginning balance of retained earnings for events that occurred prior to the earliest period reported in the latest publication of financial statements. An example follows:

XYZ Corporation
Statement of Retained Earnings
For the Year Ended December 31, 2015

Retained earnings, December 31, 2014, as previously reported	$10,000
Prior period adjustment	
Cost of property, plant & equipment incorrectly expensed	$15,000
Retained earnings, December 31, 2014, as adjusted	$25,000
Plus net income	$3,000
Less cash dividends declared	($1,000)
Retained earnings, December 31, 2015	$27,000

Items reported and based on estimates that are later revised (e.g., depreciable life or salvage value of an asset) are not corrected and do not result in prior period adjustments. These changes in accounting estimate are accounted for in current and future (prospective) periods.

Statement of Stockholders' Equity
A statement of stockholders' equity lists the beginning and ending balances of key equity accounts, describing changes occurring during the period.

Reporting Stock Options
Most publicly traded corporations issue stock options – the right to purchase shares of common stock at a fixed price over a specified period and/or prior to some expiration date. As the firm's stock price increases, the value of the stock option increases. Stock options are issued to executives and employees to motivate them to improve the corporation's performance in the long-run, and might even assist the firm in retaining top-performing and/or key personnel. High tech, biotech and cash poor start-up firms prefer this form of compensation for these reasons.

Measurement of the value of stock options and their impact on the firm's financial statements is a topic covered in intermediate financial and managerial/cost accounting courses. There have been some highly publicized problems with improper stock option back-dating in the past decade or so.[6]

[6] Available at <http://online.wsj.com/public/resources/documents/info-optionsscore06-full.html> and <http://online.wsj.com/articles/SB114265075068802118>.

Appendix A

Earnings per Share

Earnings per share (*EPS*) are computed by dividing the net income available to common shareholders by the weighted-average number of common shares issued and outstanding during the period. EPS is the same as a firm's *net income per share*. Below is the formula for basic EPS.

Basic Earnings per Share =
(Net Income – Preferred Dividends) ÷ Weighted-Average Common Shares Outstanding

Preferred dividends are, first, deducted from net income, since preferred shareholders have preferential treatment with respect to dividends to be paid out of earnings. The weighted-average number of common shares issued and outstanding are measured and matched to these earnings available to common shareholders over the same period.

For example, a firm with net income of $1 million, preferred dividends of $200,000, and ½ million weighted-average number of common shares has basic or common earnings per share of $1.60, as follows:

$1.60 = ($1,000,000 - $200,000) ÷ 500,000

Appendix B

Price-Earnings Ratio

Anticipated or expected future cash flows determine a firm's market value or market capitalization (i.e., market cap). A firm's *price-earnings* (or PE) *ratio* is a term frequently examined in the financial press, and is computed, as follows:

Price-Earnings Ratio = Market Value (Price) per Share ÷ Earnings per Share

For example, a firm with annual earnings per share at $1 might be trading at $25 per share. If so, the *PE* ratio is 25, as follows:

25 = $25 ÷ $1

Appendix C

Dividend Yield

Dividends yield is computed by dividing annual cash dividends per share by market value or price per share.

Dividend Yield = Annual Cash Dividends per Share ÷ Market Value (Price) per Share

For example, a firm with annual cash dividends of $0.25 per share and trading at $25 per share has a dividend yield of 0.01 or 1%, as follows:

1% = $0.25 ÷ $25.00

Appendix D

Book Value per Share

Book value per common share is an interesting measure, but is based on historical cost and can include intangibles that may or may not have retained their original, historical cost-based value, as follows:

Book Value per Common Share =
Stockholders' Equity Available for Common Shares ÷ Number of Common Shares Outstanding

The reverse is also true. The book value per common share may understate the fair market value of a firm. For example, land that was purchased in 1950 for $1,000 may have a fair market value of $100,000, but will remain on the firm's books at the $1,000 historical cost measure. In this case, book value is a measure that is misleading and understates the value of the firm.

Book value per preferred share is an infrequently used measure, but is provided for completeness, as follows:

Book Value per Preferred Share =
Stockholders' Equity Available for Preferred Shares ÷ Number of Preferred Shares Outstanding

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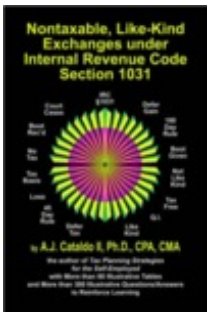

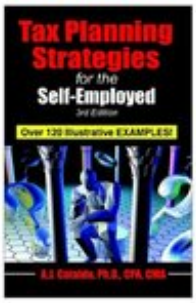

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